TESIS DOCTORAL:

# IMPLEMENTATION INTENTIONS, MINDFULNESS AND PSYCHOLOGICAL DISTANCE IN THE SELF-REGULATION PROCESS


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Papá, mamá, hermanoides, bichito…

…os quiero

# CONTENT

# IMPLEMENTATION INTENTIONS, MINDFULNESS AND PSYCHOLOGICAL DISTANCE IN THE SELF-REGULATION PROCESS

## ABSTRACT

The present dissertation investigated how the self-regulation strategy of forming implementation intentions could be best incorporated in interventions. Specifically, we pursued: 1) to experimentally test the efficacy of implementation intentions in a more realistic scenario that reflects more complex and common situations in everyday life (workplace conflict situation) as compared to emotion regulation strategies; 2) to unfold some of the cognitive orientations (mindsets) under which implementation intentions could be better generated and more efficiently applied; and 3) to enriched experimental research on mindfulness and its relation to self-regulation by implementation intentions.

With the idea in mind of using experimental methodology to achieve stronger conclusions to be applied in real life interventions, we first wanted to design an experimental scenario where individuals face more complex self-regulatory problems. We choose a common workplace scenario with conflicting goals and multitasking that might involve as well dealing with negative affect. We named it workplace conflict situation (Study 1). In Study 2 we tested if in the designed workplace conflict situation participants performed different according to the self-regulation strategy they used (either emotion regulation strategies or implementation intention strategy). In Study 3, we tested the effects of combining emotion regulation strategies with implementation intentions. Results from these studies showed that straightforward implementation intentions were more effective in dealing with an affective and cognitive demanding workplace conflict than

emotion regulation strategies. In the following studies we addressed the question of under what mindsets implementation intentions could be better generated and applied. We decided to test mindsets that typically differed in their level of construal and psychological distance (i.e., abstract versus concrete mindset), as well as mindfulness mindset. In order to do so, we first generated a mindfulness experimental procedure in Study 4. Thereafter, in Study 5 the different mindsets (abstract, concrete and mindfulness mindsets) were compared regarding their effects on the generation of implementation intentions. We assumed that mindsets could have differential effects according to the phase in which they are involved. Thus, in Study 6 we tested mindsets effects on actual performance in a workplace conflict when all participants had an implementation to self-regulate. In Study 7 we conducted a more complex design 2 (high/ low construal level) x 2 (mindfulness/no mindfulness) x 2 (implementation intentions/goal intentions). Our findings showed that mindfulness mindsets benefits the identification of critical cues; concrete mindsets benefits the quality of the if-then plans; abstract mindset impairs performance; and mindfulness mindset under a high (and meaningful) level of construal benefits memory performance regardless if self-regulation is via implementation intentions or goal intentions; however, it reduces helping behavior if goals are not furnished with implementation intention (as compared to non-mindfulness participants). Finally, considerations for designing interventions as well as theoretical implications are discussed.

# RESUMEN

La presente tesis investigó el modo de incorporar lo mejor posible en las intervenciones la estrategia de autorregulación consistente en formar intenciones de implementación (*implementation intentions*). Específicamente, nos propusimos: 1) poner a prueba la eficacia de las intenciones de implementación en un escenario más realista que refleje la complejidad de las situaciones cotidianas (situación de conflicto en el ámbito laboral), contrastándola con las estrategias de regulación emocional; 2) desvelar algunas de los estados mentales (*mindsets*) que favorecen la generación y aplicación de las intenciones de implementación, y 3) enriquecer la investigación experimental sobre la atención o consciencia plena (mindfulness), enfatizando su relación con la autorregulación a través de intenciones de implementación.

La lógica que vertebra la presente investigación es utilizar metodología experimental para obtener conclusiones sólidas que puedan ser aplicadas en intervenciones reales de la vida cotidiana. Por eso, nuestro primer objetivo fue crear un diseño experimental en el cual los participantes afronten problemas de autorregulación más complejos. Elegimos un escenario de trabajo común con metas en conflicto y múltiples tareas y en el cual puedan aparecer eventualmente experiencias aversivas o desagradables. Lo denominamos situación de conflicto en el trabajo (Estudio 1). En el Estudio 2, contrastamos si en dicha situación de conflicto en el trabajo los participantes rendían más o menos en función de las estrategias de autorregulación que usaron (o bien estrategias de regulación emocional o bien intenciones de implementación). En el Estudio 3, estudiamos los efectos combinados de las estrategias de regulación emocional y las intenciones de implementación. Los resultados de estos estudios sugirieron que las intenciones de implementación fueron más eficaces que las estrategias de regulación emocional a la hora de manejarse en un lugar de trabajo cognitiva y emocionalmente demandante. En los estudios restantes, nos planteamos dilucidar que *mindsets* favorecen la generación y la aplicación de las intenciones de implementación. Decidimos poner a prueba los mindsets que diferían típicamente

en su niveles de construal y distancia psicológica (p. ej., *mindsets* concretos versus abstractos) y también los mindsets asociados al minduflness. Para ello, primero generamos un protocolo experimental de *mindfulness* en el Estudio 4. Después, en el Estudio 5, se compararon los diferentes *mindsets* (concretos, abstractos y *mindfulness*) respecto a sus efectos en la generación de intenciones de implementación. Asumimos que los mindsets podían tener efectos diferenciales dependiendo de la fase en la cual tuvieran lugar. De este modo, en el Estudio 6 investigamos los efectos de los diferentes *mindsets* en el rendimiento de los participantes en una situación de trabajo conflictiva en la cual todos generaban intenciones de implementación para autorregularse. En el Estudio 7, realizamos un diseño experimental más complejo  2 (alto/bajo nivel de *construal*) x 2 (*mindfulness*/no *mindfulness*) x 2 (intenciones de implementación/ intenciones de meta). Los resultados sugirieron que 1) los *mindsets* de mindfulness favorecen el discernimiento de claves críticas, 2) los *mindsets* concretos favorecen la calidad de los planes si-entonces (*if-them plans*), 3) los *mindsets* abstractos merman el rendimiento y 4) los *mindsets* de *mindfulness* con un alto (y significativo) nivel de *construal* favorecen el rendimiento, independientemente de si la autorregulación se realizó a través de intenciones de implementación o de intenciones de meta. No obstante lo anterior, los *mindsets* de *mindfulness* reducen la conducta de ayuda si las metas no se acompañan de intenciones de implementación (si se los compara con los participantes en los que no se elicitaron mindsets de mindfulness). Finalmente, se discuten las implicaciones teóricas de los resultados y su influencia en el diseño de intervenciones.

# PART I: PRESENT RESEARCH IN CONTEXT

# Chapter 1:
# Overview of the Dissertation

One intriguing theme in personality psychology is the relative influence of values and goal intentions on behavior (e.g., Torelli and Kaikati, 2009). Values and valued goals are a very important part of the self (Sheldon 2008; Sheldon & Elliot, 1999; Feather, 1995; Schwartz, 1992; Seligman & Katz, 1996) and self-regulation towards them is one of the key aspects of well-being (Deci & Ryan, 2008; Sheldon 2008; Ryff & Singer, 2006; Waterman 2007). Furthermore, the efficacy of many of the so called "third wave therapies" (e.g., Acceptance and Commitment Therapy) rests on the importance of acting according to personal values (Hayes, Strosahl,& Wilson, 2012). However, there is no much research regarding value - intentions relationship and value-behavior relationship (Eyal, Sagristano, Trope, Liberman, & Chaiken, 2009) and results are not always similar. For example, though some research showed high correlations between values and intentional behaviors (e.g., Rokeach, 1973; Sagiv & Schwartz, 1995; Bardi & Schwartz, 2003), other authors have found values to be poor predictors of behavior (e.g., Kristiansen & Hotte, 1996). In this line, there is much more research regarding the relation between goal intentions and behavior, although results are controversial too. In traditional theories of goal pursuit, goal intentions are construed as the most immediate and important predictor of behavior. Accordingly, prior correlational research supported their assumption as strength of intention typically explained 20-35% of the variance in goal achievement, with a considerable large effect size as reported by meta-analysis data (Sheeran, 2002). However, further data from experimental research showed that goal intention generates a small to medium effect in goal achievement and that there is still a substantial "gap" between people´s goal

intentions and their subsequent behavior and attainment (Gollwitzer & Sheeran, 2006). Following this line of reasoning, no matter if we are talking about values or we are talking about goals, setting a goal (or a value, whatever content or structure) represents only a step of the process of goal realization (see Figure 1) , as established by the Model of Action Phases (Gollwitzer, 1990; Heckhausen & Gollwitzer, 1987).

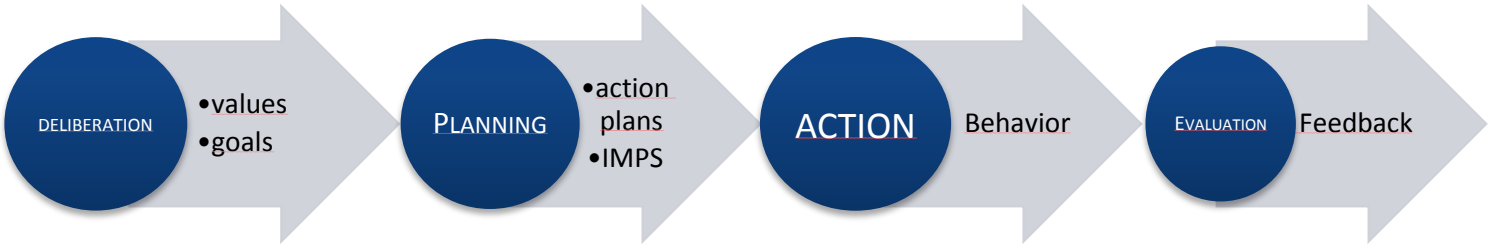



Figure 1.- Model of Action Phases (Heckhausen & Gollwitzer, 1987)

In some cases, it may not be possible to implement goal intentions immediately. Many goal intentions are involved within complex situations and they usually require time to be achieved (e.g., graduating, ending a project at work, co-working with people you may not like to achieve a common aim, dieting, etc.). It can be notice that this kind of goals cannot be accomplished by a simple discrete response, they require that people strive for them (e.g., Gollwitzer 1990, 1999, 2012). It is in situations like this that usually arise the problems of goal striving such as: getting started, getting derailed due to unwanted influences (conscious or not) or pursuing multiple goals with a likely overload of the person´ self-regulatory capability. In that kind of context goal intentions by themselves do not seem to be out of the reach of goal striving problems. Apparently, effective self-regulation by mere goal intentions requires not only high strength of the intention but high specificity and enough cognitive resources available (Wiever, Sezer,

Gollwitzer, 2014). Therefore, implementing good strategies to successfully overcome potential goal striving problems become a key issue.

Implementation intentions may be this kind of strategy. Implementation intentions are simple if-then action plans that specify when, where, and how to act (Gollwitzer, 1999). Therefore, implementation intentions specify critical cues (if-part) and desired behaviors (then-part) towards goals. When goals require time and cognitive resources are limited, when we foresee there will be temptations, and barriers, implementation intentions could be the kind of strategy that help to overcome difficulties in self-regulation. A considerable amount of research revealed their beneficial effects for goal striving regarding a wide variety of goals (Gollwitzer & Sheeran, 2006; Gollwitzer & Oettingen, 2012). However, as far as we are aware, there is still no experimental study where a complex scenario for self-regulation, more similar to real life, is presented. What would it be a more complex scenario? For example, a complex scenario would be a task where individuals have to achieve conflicting goals, and at the same time to deal with negative affect. These characteristics are typical from workplace situations for instance. Thus, represent this kind of scenario in lab settings would bring ecological validity at the same that it would expand research areas where implementation intentions could have a beneficial effect.

With this idea in mind of using experimental methodology to achieve stronger conclusions to be applied in real life, we first wanted to design an experimental scenario where individuals face more complex self-regulatory problems. We choose a common workplace scenario with conflicting goals and multitasking that might involve as well dealing with negative affect. In this scenario more complex self-regulatory responses

(versus one-shot responses) were presumable needed. We named it workplace conflict situation (Study 1). We generated the workplace conflict situation to test whether implementation intentions enhance actual performance (versus self-reported intentions of behavior), considering at the same time, both ecological validity as well as experimental rigor. Therefore, in Experiment 2 we tested if in the designed workplace conflict situation participants performed different according to the self-regulation strategy used (either emotion regulation strategies or implementation intention strategy). We extended this last design in Experiment 3 to test if, as a result of combining emotion regulation strategies with implementation intentions, performance would be either enhanced, similar or diminished in comparison to the straightforward implementation intention effect.

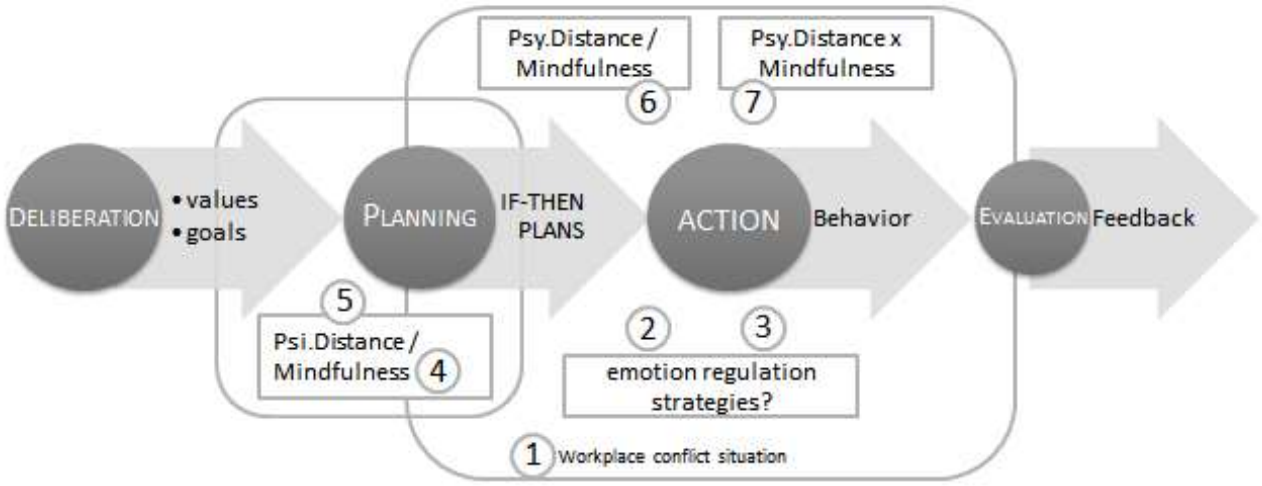



Figure 2.- Relation of our studies within the model of action phases

After we prove the efficacy of implementation intentions in the workplace conflict scenario we wanted to figure out the appropriate mindsets that could benefit (or impair) implementation intentions. Mindsets describe cognitive orientation with distinct features

that promotes related task completion (e.g., Achtziger & Gollwitzer, 2008; Gollwitzter, 1990). As cognitive operations, mindsets are subject to activation (Bargh & Chartrand, 2000). Once activated, there is increase likelihood that these operations will be used in upcoming tasks to interpret new information (Freitas et al., 2004; Higgins, 1996). Thus, by inducing or priming mindsets it is possible to test for the effects different cognitive orientations could have on the self-regulation process.

In order to do so (see Figure 2), we first proceed to test the effect different mindsets could have on the generation of implementation intentions. We decided to test mindsets that differed in their level of construal (Trope & Liberman, 2010), and therefore that were different in their psychological distance (i.e., abstract versus concrete mindset). For instance, some research using this kind of procedure showed that priming abstract mindsets apparently enhance more value-congruent behavior (i.e., Torelli & Kaikati, 2009). We were interested in mindfulness mindset as well (mindfulness experimental procedure was generated in Experiment 4). In one hand because it is a particular state that has generated many research, but very few experimental one (i.e., Davidson, 2010). On the other hand because it is unclear at which level of construal belongs. Therefore, abstract, concrete and mindfulness mindsets were compared regarding their effects on the generation of implementation intentions (Experiment 5).

Following the reasoning of the Rubicon model (see Figure 2), we assumed that mindsets could have differential effects according to the phase in which they are involved. Thus, in our next study instead of testing mindset effects on the generation of implementation intentions, we tested their effects on implementation intentions efficacy on actual behavior (Experiment 6); again in the workplace conflict scenario. All along, one of the main purposes of our research is to achieve conclusions that might help in applied settings, consequently we considered that in real workplace conflicts, mindsets,

instructions, and so on, do not usually come split up. That is why in our last study we wanted to move one step further. In Experiment 7 we wanted to test for interaction effects among mindsets and implementation intentions. In real interventions instructions and planning are integrated in a whole speech and interaction effects might be occurring. Therefore, it was important to control for these possible interaction effects, as well as main effects, in the experimental context. We did so in order to shed light into basic research of implementation intentions as well as to be able to transfer this knowledge for designing interventions.

In the next pages we will further review the most important theoretical aspects related to all the above mentioned topics. They will be organized within the following headings: V*alues, goals and well-being*; *Value/Goal – Behavior relation*; *Goal Setting*; *Goal Striving*; *Cognitive affective processing system and cooling strategies*; *Self-Regulatory Strength Theory*; *Construal Level Theory & Self-Regulation*; & *Model of Action Phases*. After that, in part II, the seven studies with their respective results will be explained in detail. Finally, in part III a *general discussion*, *limitations* and *future research* as well as *main conclusions* will be presented.

# Chapter 2:
# Theoretical Background

## VALUES, GOALS AND WELL-BEING[1]

Nuestro interés por los procesos de autorregulación nace de la importancia que la consecución de los valores y metas personales tiene sobre el bienestar de la persona. La presente investigación forma parte de un proyecto más amplio en el que se busca generar condiciones (personales e interpersonales) que ayuden a las personas a cuidar su salud psicológica pero además a mejorar y crecer personalmente. En este sentido, los valores y las metas personales representan una parte importante del yo y la auto-regulación hacia los mismos es uno de los aspectos fundamentales del bienestar en un sentido amplio y trascendente (v.g., Deci & Ryan, 2008; Sheldon & Elliot 1999; Ryff & Singer, 2006; Waterman 2007).

Por ejemplo, Ryff (1989) propone el concepto de bienestar psicológico (*psychological well-being*) que engloba seis parámetros, entre los cuales figuran la autonomía y el propósito en la vida, que hacen referencia a las metas personalmente elegidas y valoradas por la persona. Deci y Ryan (v.g., Deci & Ryan, 2008) a través de la Teoría de la Auto-determinación (Self Determination Theory) sostiene que las metas intrínsecamente motivadas son las que dan expresión al verdadero yo y por consiguiente a la felicidad. También en el marco eudaimónico del bienestar, Waterman (2007, 2008) resaltan la importancia de las actividades que dan expresión al yo; es decir, aquellas que permiten desarrollar los propios potenciales.

A su vez, dentro del campo aplicado de la psicología clínica y de la salud también es posible rastrear la importancia de los valores y las metas personales en el

[1] Se incluyen los títulos en inglés por coherencia a la hora de ver el índice global

propio bienestar. La tercera ola de terapias conductuales y cognitivas (Hayes, 2004) hace referencia a los enfoques basados en la atención plena (*mindfulness*) y la aceptación que surgen a partir de la década de los 90 para tratar de superar las limitaciones de los enfoques previos. En dicho contexto, la Terapia de Aceptación y Compromiso (Hayes, Stroshal & Wilson, 1999) se puede considerar una de las terapias más completa de cuantas han emergido (Luciano, Valdivia, Gutiérrez, Páez-Blarrina, 2006). La terapia no solo hace uso de la aceptación y el *mindfulness* en un sentido amplio, sino que además pone un especial énfasis sobre los procesos de clarificación y persecución de valores. De hecho, se entiende que todas las técnicas de aceptación y *mindfulness* recogidas en dicho modelo están al servicio de los valores de la persona. En otras palabras, se entiende que la mejoría clínica acontece cuando la persona aumenta, a través de sus actos, la expresión de sus propios valores y no tanto cuando simplemente reduce su sintomatología. Cuando se ha estudiado de manera aislada la eficacia de los distintos componentes de la terapia de aceptación y compromiso, los resultados sugieren que la inclusión de un contexto de valor, aunque sea formulado de manera breve y simple, mejora notablemente el afrontamiento de las experiencias aversivas (Branstetter-Rost, Cushing, & Douleh, 2009; Luciano et al., 2010)

Es por otro lado importante diferenciar entre los conceptos de valores y metas en sí mismos. Los valores son representaciones abstractas de estados finales deseados que representan lo que es importante para nosotros en nuestra vida y nos sirven como guía o dirección (Feather, 1995; Schwartz & Bilky, 1987, 1990) y por lo tanto no tienen un final alcanzable. Las metas son, al menos potencialmente, alcanzables. Una meta es una representación cognitiva de un objeto futuro que la persona está comprometida a conseguir o a evitar[2] (Elliot & Fryer, 2008). Las metas presentan la estructura "Yo

[2] In psychology, researchers and theorist use the term goal in many different ways, there is no agreement on the definition and use of goal (Elliot & Fryer, 2008 –libro motivational science). We will

intento alcanzar Z", donde Z es un resultado concreto por el que la persona siente cierto compromiso (Gollwitzer, Fujita, Oettingen, 2004). Por lo tanto, precisamente porque los valores son por definición no alcanzables, deben de ser traducidos en metas concretas. Las metas serían esos puntos concretos que sí podemos alcanzar en la ruta hacia los valores que nos sirven de guía.

## VALUE/GOAL – BEHAVIOR RELATION

A pesar de la gran importancia que parecen tener valores y metas, se han encontrado datos en diferentes direcciones en lo relacionado con el comportamiento real al que dan lugar. En relación a los valores hay poca investigación (Eyal, Sagristano, Trope, Liberman, & Chaiken, 2009) y los resultados no son siempre similares. Por un lado se encuentran correlaciones bastante altas entre cuestionarios de valores y las intenciones de acción (v.g., Rokeach, 1973; Sagiv & Schwartz, 1995; Bardi & Schwartz, 2003), pero también se han encontrado resultados que muestran que los valores predicen más bien poco el comportamiento real de las personas (v.g., Kristiansen & Hotte, 1996) o lo predicen pero sólo bajo determinadas circunstancias (Eyal, et al., 2009). Hay mucha más investigación relacionando las metas con el comportamiento aunque los resultados son también controvertidos. Encontramos por una parte multitud de datos de estudios correlaciónales que apoyan el supuesto de la mayoría de teorías tradicionales de goal setting de que la fuerza de las intenciones de meta predice altamente el comportamiento (explicando entre el 20-35% de la varianza, presentando buen tamaño del efecto según meta-análisis de Sheeran, 2002). Desde control theory, (Carver & Scheier, 1998); social cognitive theory (Bandura, 1997); goal setting theory, (Locke & Latham, 1990), theory of reasoned action (Fishbein, 1980); planned behavior (Ajzen, 1991), the model of interpersonal behavior (Triandis, 1980);

use the approach that considers goals as achievable desired end states that energize as well as direct behavior.

protection motivation theory (Rogers, 1983); or prototype/willingness model (Gibbons, Gerrard, Blanton, & Russell, 1998), todas ellas consideran que las intenciones de meta tienen un rol central en la predicción del comportamiento (see review by Gollwitzer & Sheeran, 2006). Por otra parte partiendo de la evidencia experimental las intenciones de meta aparentemente presentan menos efectos de explicación del comportamiento (bajo-medio tamaño del efecto, según meta-análisis de Gollwitzer & Sheeran, 2006). Por lo que aparentemente sigue había una brecha de separación entre las metas y el comportamiento final.

Es por consiguiente importante no sólo definir bien cuáles son nuestras metas (*goal setting*) sino también asegurarse de alcanzarlas y no fallar en el intento (*goal striving*). En la investigación que aquí se presenta nuestro principal interés se centra en esa segunda parte del proceso. Siguiendo esta lógica, en primer lugar mostraremos algunos aspectos importantes de la representación y activación de las metas que habremos de tener en cuenta y posteriormente nos centraremos en el proceso de regulación haciendo hincapié en las teorías más relevantes para la presente investigación así como en las estrategias de regulación que forman parte de nuestros estudios.

## GOAL SETTING

Como parte de la fase de establecimiento de metas y sus posibles efectos a lo largo del proceso de regulación, es en primer lugar importante señalar algunos aspectos importantes de la representación de metas, así como de los principios de activación de las mismas. Según la literatura sobre *goal setting*, valores y metas[3] estarían representados en la memoria (Bargh, 1990; Hull 1931; Kruglanski, 1996; Tolman,

[3] A partir de ahora nos referiremos simplemente a metas

1932) formando redes interconectadas que fluctúan en accesibilidad (i.e., Higgins, 1996) y por lo tanto en la capacidad de ser activadas y activar a aquellas con las que están conectadas, así como de transferir propiedades de unas a otras (Fishbach & Ferguson, 2007). Se caracterizan además por el hecho de que están organizadas jerárquicamente, diferenciando en este caso entre metas subordinadas y superordinadas (Hommel, Muesseler, Aschersleben, & Prinz, 2001; Kruglanski et al., 2002). Las metas subordinadas pueden caracterizarse por servir a su vez a múltiples metas (*multifinality*) y a su vez puede existir varias formas de llegar a una misma meta superordinada (*equifinality*) (Kruglanski et al., 2002; Shah et al., 2002). Las metas además pueden diferir en su nivel de abstracción (Vallacher & Wegner, 1987, Action identification theory) teniendo metas muy abstractas (valores) o metas muy concretas (micro-acciones puntuales).

En las teorías clásicas se considera que las personas deliberadamente deciden adoptar y alcanzar una meta, por lo que su activación se realizaría de forma consciente e intencional (Bandura, 1986; Carver & Scheier, 1998; Deci & Ryan, 1985; Gollwitzer, 1990; Locke & Latham, 1990). Sin embargo, cada vez hay más investigación que muestra que las metas pueden ser activadas de forma inconsciente al hacerse accesibles a través de otras metas / conceptos / situaciones a las que estén interconectadas (Bargh, 1990; Bargh & Barndollar, 1996; Bargh et al., 2001; Gollwitzer, 1999; Kruglanski, 1996; Shah & Kruglanski, 2003; Fishbach & Ferguson, 2007). En este sentido, ni siquiera la percepción del estímulo desencadenante tiene porque ser consciente e incluso si la percepción lo es, las personas no tienen por qué darse cuenta de que eso ha provocado la activación de otras metas asociadas (Ferguson & Bargh, 2004). De hecho las personas aunque se hayan propuesto seguir una única meta como objetivo principal, en su día a día muchas situaciones (Bargh, 1997; Bargh, Gollwitzer,

Chai, & Barndollar,1999), compañeros (Fitzsimons and Bargh, 2003; Shah, 2003) e incluso personas extrañas (Aarts, Gollwitzer, & Hassin, 2004; Cesario, Plaks, & Higgins, 2006) pueden ser los desencadenantes de la activación de otras metas. Por lo tanto, ya sea de forma consciente o inconsciente, otro punto importante es el hecho de que puede haber múltiples metas interactuando unas con otras e influenciando por lo tanto el comportamiento de la persona (Fishbach & Ferguson, 2007).

Förster y colaboradores (Förster, Liberman, & Friedman, 2007) postulan varios principios de activación de las metas (versus por ejemplo la activación de constructos semánticos) que se pueden identificar como una serie de características que derivan (y muchas veces se solapan) de diversas teorías de auto-regulación. Estos principios postulan que el hecho de que se active una meta (de forma consciente o inconsciente):

1) Implica valor.

Las metas cambian el valor de los objetos con los que se relacionan. Aquello que ayuda al logro de la meta toma un cariz positivo mientras que aquello que lo empeora se tiñe de un valor negativo. Por ejemplo, si nos hemos quedado sin luz en casa y necesitamos cambiar los fusibles, de repente un objeto en el que no habíamos reparado obtiene un valor positivo y elevado según la necesidad del mismo para alcanzar la meta. Por lo tanto las metas incrementan el valor de los objetos y acciones que se perciben como medios para alcanzar el estado final deseado (Förster et al., 2007).

2) Implica reducción de la motivación una vez alcanzadas.

La fuerza o la activación de una meta sólo se disipa cuando se ha alcanzado la misma, mientras que por ejemplo la activación de constructos semánticos –no motivacionales- se disipa de forma constante desde el momento de la activación (Förster & Liberman, 2007; Gollwitzer & Moskowitz, 1996).

3) Implica gradientes en función de la distancia a la meta.

Se considera un principio clásico que la motivación se incrementa según la distancia a la meta se reduce (Förster, Grant, Idson, & Higgins, 2001; Förster, Higgins, & Idson, 1998) y al contrario, la motivación se reduce según la distancia a la meta aumenta (Mischel & Ayduk, 2011). Esto no ocurre tampoco con los constructos semánticos, los cuales como hemos dicho van reduciendo su activación de forma constante.

4) Implica inhibición de metas en conflicto.

Este punto se aplica tanto para una meta que nos hemos propuesto seguir como a las que no. Es decir, si se activa una meta (por ejemplo por claves del contexto) que no es la que nosotros nos habíamos propuesto llevar a cabo, nos distrae de nuestro objetivo principal pues a través de la activación focalizamos nuestra atención hacia ella y abandonamos la nuestra que sería la que entraba en conflicto. Sin embargo, la teoría de sistemas de metas (GST, Kruglanski et al., 2002; Shah, Kruglanski & Friedman, 2002) propone que las metas forman redes jerárquicas donde hay metas superordinadas (fin) y metas subordinadas (medios). Estas metas al activarse, activarían igualmente las metas a las que sirven y viceversa. De hecho Shah y Kruglanski (2003) encontraron que activar los medios asociados a una meta aumentaba la accesibilidad de la misma así como la persistencia y el rendimiento en una tarea relacionada.

5) Implica que sus efectos son proporcionales al producto expectativa x valor.

La motivación incrementaría tanto con la expectativa de alcanzar la meta como con el valor que la propia meta tiene en sí misma.

Vamos a hacer especial hincapié en este último punto porque probablemente no hay ninguna teoría contemporánea en motivación que no incorpore la teoría de la expectativa-valor en el establecimiento de metas (Beckmann & Heckhausen, 2008). La idea básica de estas teorías es que el establecimiento de una meta y por tanto el

comportamiento hacia ella se explica por la consideración tanto del valor de la meta a alcanzar como por la expectativa de éxito/fracaso en conseguirla.

Bandura propuso la Teoría Social Cognitiva (SCT) para dar cuenta del funcionamiento psicológico proactivo (Bandura, 2012). En este sentido Bandura otorga un lugar importante al proceso de auto-regulación y en concreto a la expectativa de resultados, el valor de los mismos y la percepción de autoeficacia (Schunk & Usher, 2012). Mientras que la expectativa de resultados son las creencias sobre los resultados que se esperan de unas determinadas acciones, la autoeficacia son las creencias sobre la capacidad de uno mismo para producir unos determinados resultados (v.g., Bandura, 2006). Por otro lado el valor que se le otorga a la meta es determinante para decidir si intentar alcanzarla o no. En este sentido, la probabilidad de decidir y alcanzar una meta se ha visto positivamente relacionada cuanto mayor es el valor y la expectativa de éxito, así como la percepción de autoeficacia respecto de la misma.

Las teorías de acción razonada y comportamiento planeado están relacionadas con el concepto de auto-eficacia propuesto por Bandura. La teoría de acción razonada (TAR, Fishbein & Ajzen, 1975) postula que el mejor predictor del comportamiento humano es la intención de hacer algo (equivalente a la intención de meta que diferencia Gollwitzer, 1990). Las intenciones reflejan el esfuerzo que las personas planean llevar a cabo para conseguir algo y vendrían determinadas por dos factores: la actitud hacia la meta (evaluación positiva o negativa de lo que supondría conseguirla) y la norma subjetiva que reflejaría la percepción de la presión social respecto a llevar a cabo esa meta (Fishbein, 1980). La TAR asume que el comportamiento se encuentra bajo control total de la voluntad del individuo (Ajzen, 1985). Sin embargo, en la práctica muchos factores no relacionados con la motivación del individuo pueden interferir o influenciar en ese proceso. Para salvar este hecho, Ajzen (1985) postula la teoría de

comportamiento razonado que amplía la TAR introduciendo el concepto de control percibido del comportamiento (*perceived behavioral control*, PBC). El PBC se refiere a la percepción de la persona de lo difícil o fácil que es llevar a cabo un comportamiento concreto (Ajzen, 1991). Precisamente el PBC estaría relacionado con el concepto de auto-eficacia en el sentido de que se refiere a la percepción de control de los propios recursos pero el PBC también añade esa percepción de control que el ambiente ejerce sobre el comportamiento.

Aunque estas últimas teorías consideran globalmente el proceso de auto-regulación, realmente son teorías que se centran en entender cómo las personas deciden si alcanzar o no una meta y poca consideración dan a la secuencia de comportamientos necesarios para llegar a ella (Rothman, Baldwin, Hertel y Fuglestad, 2011). Por ejemplo TAR no hace una distinción formal entre la iniciación y el mantenimiento del comportamiento dirigido a metas. La teoría SC de Bandura propone que las creencias de auto-eficacia son determinantes en ambos iniciación y mantenimiento del comportamiento, sin embargo no propone mecanismos más allá de eso (Rothman, Baldwin, Hertel y Fuglestad, 2011), por ello las hemos recogido bajo el epígrafe de *goal setting*

## GOAL STRIVING

En el presente epígrafe referido a *goal striving* nos centraremos en las teorías principales de auto-regulación hacia metas que afectan a la presente investigación así como desarrollaremos algunas de las estrategias de auto-regulación que de ellas se derivan y cuya explicación resulta de especial relevancia para los estudios que aquí se presentan.

### COGNITIVE AFFECTIVE PROCESSING SYSTEM & COOLING STRATEGIES

El modelo cognitivo afectivo de procesamiento o CAPS de Mischel y colaboradores (Mischel & Ayduk, 2004; Mischel y Shoda 1995, 1999) es un modelo que propone que la persona actúa conscientemente regulándose y hace un esfuerzo para ello. Es además un modelo integrador en el sentido de que entiende la auto-regulación como un componente de un sistema cognitivo-afectivo mucho mayor del que forma parte. Examina entre otras cosas bajo que procesos y condiciones los individuos superan las tentaciones, presiones o estímulos del momento que amenazan la consecución de metas y valores. En su análisis la consecución de metas que no pueden ser alcanzadas en el momento o que resultan especialmente difíciles de alcanzar a largo plazo depende de la disponibilidad y accesibilidad de ciertos tipos de estrategias cognitivo-atencionales (Mischel & Ayduk, 2011).

Las primeras ideas de lo que podría estar ocurriendo en los procesos de auto-regulación provinieron del paradigma de demora de la gratificación con niños (Mischel 1974; Mischel & Moore, 1973). En este paradigma se situaba a niños de cuatro años ante un dilema donde se les situaba en un fuerte conflicto entre la recompensa del

momento o una recompensa mayor a la espera de un tiempo indeterminado. En concreto se les presentaba en ese preciso momento y delante de ellos una golosina y se les decía que si esperaban (un tiempo indefinido) el experimentador les traería el doble de golosinas o por el contrario, si no querían esperar que podían llamar al adulto y comerse la golosina que ya estaba delante de ellos.

El CAPS propone que habría dos sistemas interactuando en la auto-regulación en general y en el paradigma de demora de la gratificación en particular, por un lado un sistema cognitivo-frío (*cool system*) y por otro lado un sistema emocional-caliente (*hot system*). El sistema caliente estaría basado principalmente en el afecto y generaría respuestas rápidas, impulsivas y del tipo aproximación-evitación en presencia de un estímulo determinado, mientras que el frío sería más reflexivo y lento. Ambos sistemas cogntivo y afectivo operan en continua interacción Sin entrar en lo que supone teóricamente hablando la distinción entre estos dos sistemas, lo interesante en este caso es la interpretación de que la regulación supondría la activación del sistema frío para compensar la tendencia de actuar impulsivamente del sistema caliente. Partiendo de esto, los autores razonaron que la auto-regulación hacia metas o recompensas que se demoraban en el tiempo podría facilitarse si las recompensas que se demoraban en el tiempo se hacían más salientes de alguna manera y por lo tanto más accesibles como representación mental. Para poner a prueba esta teoría realizaron un estudio muy interesante en el que ponían a los niños en la misma situación pero en lugar de que tuviera que imaginarse la recompensa futura, les ponían una imagen de tamaño real de las recompensas inmediatas y de las demoradas. Durante el tiempo de espera también se ponía la recompensa inmediata real en frente de ellos. Como se había predicho la exposición a las imágenes incrementó el tiempo de espera de los niños (Mischel & Moore, 1973). Otros estudios siguieron, por ejemplo ayudando a los niños a imaginarse

la chuchería desde otro punto de vista (en concreto diciéndoles que se imaginaran poniendo un marco sobre las mismas para "verlas" como si fueran fotografías) encontrando que haciendo esto los niños también aguantaban más tiempo (Moore, Mischel & Zeiss, 1976). A partir de los resultados encontrados concluyeron que la demora de la gratificación no sólo dependía de si la atención se enfocaba en el objeto de deseo (haciéndolo más accesible) sino también de cómo los objetos (presentes o demorados) se representaban mentalmente, si atendiendo a las características "calientes" o "frías" (Mischel & Ayduk, 2011).

Mischel y Ayduk (2011) consideran varias estrategias (algunas provenientes de otras perspectivas) como posibles "estrategias frías" (*cooling strategies*). Entre otras mencionan estrategias de regulación emocional como la reevaluación (v.g., Gross, 1998), la auto-distracción (v.g., Bonnano, Keltner, Holen,& Horowitz, 1995), o el auto-distanciamiento (Ayduk & Kross, 2008).

## EMOTION REGULATION

Regular la emoción (desde la perspectiva de evaluación a appraisal de las emociones), consiste en intentos por influenciar qué emociones experimentamos, cuándo las experimentamos y cómo esas emociones se expresan (Gross & Barret, 2011; Gross, Richards, & John 2006). En este sentido Gross diferencia entre dos tipos de estrategias globales: las focalizadas en los antecedentes de la emoción y las focalizadas en la respuesta de la emoción. Las estrategias centradas en los antecedentes consisten en prevenir que la respuesta emocional se haya activado completamente, mientras que las estrategias centradas en la respuesta consisten en regular la emoción una vez que ya se ha producido (Gross & John, 2003). Las dos estrategias concretas características de cada una de ellas son la reevaluación y la supresión respectivamente. La reevaluación consiste en interpretar de manera diferente el estímulo o situación que potencialmente

podría elicitar la emoción, mientras que la supresión consiste en inhibir las expresiones emocionales. La investigación ha mostrado que la supresión requiere mucho más esfuerzo que la reevaluación y que reduce en mayor medida los recursos regulatorios en consecuencia (Baumeister, Bratslavsky, Muraven, & Tice, 1998; Richards and Gross, 2000), sin embargo la reevaluación se mostraba como una estrategia menos perjudicial en este sentido. Partiendo de un modelo entorno de estudio diferente Hochshild (1983) señalaba que mostrar las emociones "adecuadas" en el puesto de trabajo (a pesar de las que se sientan realmente) es un proceso costoso al cual nombró como trabajo emocional (*emotional labour*). Dentro de este contexto se han estudiado principalmente dos estrategias de manejo emocional (Quiñones, Rodríguez-Carvajal, Clarke & Moreno-Jiménez, 2013) la estrategia de actuación profunda (Deep acting) y la actuación superficial (surface acting). La primera se refiere a un cambio en las propias emociones sentidas para adecuarse a las emociones adecuadas para mostrar, mientras que la segunda se refiere a expresar las emociones adecuadas sin haber cambiado las que realmente se sienten (Grandey, 2000). Mientras que la primera se ha comparado con las estrategias de reevaluación, la segunda se correspondería con estrategias de supresión (Goldberg & Grandey, 2007). En este sentido la evidencia empírica encontrada también apunta que la estrategia más dañina es la estrategia de actuación superficial en la que la persona expresa una emoción diferente a la que siente (v.g., Grandey, Fisk, & Steiner, 2005). Parece ser que efectivamente atendiendo a las estrategias de regulación emocional, aquellas que se centran en reevaluar la situación antes de que la respuesta emocional se active por completo (reevaluación o actuación profunda) suponen menos esfuerzo para la persona.

## SELF-DISTRACTION

La auto-distracción, como por ejemplo involucrarte en pequeñas tareas domésticas evitando así fijar la atención en aquello que causa la emoción negativa, también puede ser una buena estrategia bajo determinadas circunstancias para lidiar con el dolor o con situaciones inevitables y estresantes (Bonnano, et al., 1995) como la muerte de un ser querido. No obstante, no habrá que perder de vista que las estrategias que abogan por la evitación y la supresión emocional pueden resultar perjudiciales incluso exacerbando los posibles síntomas y las emociones negativas en el largo plazo (v.g., Marcks & Woods, 2005; Marcks & Woods, 2007; Najmi, Riemann, & Wegner, 2009). En este sentido Mischel y Ayduz (2011) señalan que lo importante no es tanto evitar los estímulos negativos sino fijar la atención en las características frías de los mismos en lugar de en las características calientes.

### DETACHED PERSPECTIVE

Otra estrategia propuesta y que podrían ayudar en la auto-regulación es el auto-distanciamiento o distanciarse uno mismo de la situación. Situarse en la perspectiva de un observador respecto a una experiencia negativa provoca que las personas muestren menos afecto negativo que analizar la experiencia inmerso en la misma (v.g., Ayduk & Kross, 2008; Kross, Ayduk, & Mischel, 2005; Kross & Mischel, 2010).

En una línea similar a la perspectiva del observador pero partiendo de una fundamentación muy diferente encontramos la atención o conciencia plena (*mindfulness*) que desarrollamos de manera más extensa en el último apartado de la introducción por ser uno de los aspectos importantes estudiados en la presente investigación.

Mischel y colaboradores (Mischel & Ayduk, 2011) sugieren que las estrategias que proponen y aquellas que podrían basarse en la regulación de los sistemas frio/caliente

representan esfuerzos de auto-regulación y que como tales esfuerzos, para que resulten adaptativos deberían pasar de ser estrategias conscientes, lentas y que requieran esfuerzo a estrategias de activación automática. Van más allá y sugieren que este proceso puede ser llevado a cabo a través de intenciones de implementación cuyo formato de plan si-entonces especifica varios pasos necesarios para proteger a la persona de las tentaciones que podría encontrarse a la vez que automatiza la manera de llevarlo a cabo (Mischel & Ayduk, 2011). Esta estrategia se desarrolla más adelante en los siguientes apartados puesto que además es precisamente en este tipo de estrategia en la que nos centraremos en nuestra investigación.

## SELF-REGULATORY STRENGTH THEORY

Una de las principales teorías dentro de la auto-regulación es la teoría de que existen unos recursos regulatorios limitados y el ejercicio de la auto-regulación consciente drena tales recursos (v.g., Baumeister, Bratslavsky, Muraven, & Tice, 1998). Baumeister y colaboradores proponen que el ejercicio de la auto-regulación requiere inhibir conscientemente reacciones automáticas y rutinizadas y comparan el hacerlo con el ejercicio de un músculo que se cansa al cabo de un tiempo ejercitándose y que si descansa se recupera de nuevo (Baumeister, Vohs, & Tice, 2007). Cuando las personas controlan sus reacciones de forma consciente e impiden que comportamientos automáticos se ejecuten, estarían auto-regulándose[4]. Esta teoría propone que el ejercicio consciente de auto-control (*top-down*) drena nuestros recursos dejándonos en un estado de reducción de la fuerza regulatoria o *ego-depletion*; mientras que la auto-regulación llevada a cabo de manera automática (*bottom-up*) no produciría estos efectos o los produciría en menor medida. Una de las primeras investigaciones llevadas a cabo para probar los supuestos de la teoría enfrentaba a los participantes a una tarea que requería

[4] Los autores dicen auto-controlarse pero nosotros utilizamos el término de auto-regulación en consonancia durante la presente tesis

auto-regulación (versus condición control) y después a una siguiente tarea donde tenían que ejercer también auto-regulación. Sistemáticamente, los participantes que habían tenido una primera tarea que requería auto-regulación mostraban peores resultados en la segunda (Muraven, Tice, & Baumeister, 1998; Baumeister et al., 1998). Numerosos estudios han comprobado este efecto hasta el día de hoy en el rendimiento de diversas tareas (ver meta-análisis de Hagger, Wood, Stiff, & Chatzisarantis, 2010).

## CONSTRUAL LEVEL THEORY & SELF-REGULATION

La Teoría del Nivel de Construal o ***Construal Level Theory*** (CLT) se basa en teorías como la Teoría de Acción Identificada (Vallacher & Wegner, 1987), Teoría de Categorización (Rosch, 1975) y de formación de conceptos (Medin & Smith, 1984). A partir de ellas propone que el mismo objeto puede representarse en muchos niveles de construcción o *construal* (Trope & Liberman, 2003), desde representaciones muy concretas del objeto hasta representaciones muy abstractas del mismo (Trope & Liberman, 2010). Los altos niveles de *construal* (CL) serían representaciones mentales abstractas y superordinadas que añaden información adicional sobre el objeto (como por ejemplo el valor del mismo o su relación con otros objetos). Por otro lado, los niveles bajos CL serían representaciones más concretas donde predominan las características locales, incidentales y detalladas del objeto en cuestión.

Es importante remarcar la diferencia entre otro concepto relacionado al CL: la **distancia psicológica**. La distancia psicológica es egocéntrica, su punto de referencia es el yo. Por lo tanto, las diferentes formas en que un objeto puede ser alejado de ese punto de referencia (tiempo, espacio, distancia social, etc.) constituyen diferentes dimensiones de distancia psicológica (Trope & Liberman, 2010). Distancia psicológica y CL están relacionados pero no son lo mismo. ¿Cómo están relacionados? CL y distancia psicológica están relacionados en el sentido en que las personas tienden a usar

más altos CL a medida que la distancia psicológica de un objeto aumenta. Viceversa también ocurre, las personas tienden a traer a la mente objetos más lejanos cuando construyen las situaciones en términos de altos CL. Esta relación parece apuntar a que los altos CL hacen más accesibles los objetos psicológicamente lejanos (y viceversa). En numerosas investigaciones se utilizan altos (bajos) niveles de distancia psicológica para elicitar la construcción de la situación en términos de altos (bajos) CL. Así por ejemplo preguntar por actividades que se llevarán a cabo en un futuro lejano (alta distancia psicológica) hace que las personas construyan las frases referentes a esas actividades en términos más abstractos (alto CL) (v.g., Giacomantonio, De Dreu, Shalvi, Sligte & Leder, 2010). En otras sin embargo directamente se manipula el CL a través de tareas que manipulan el nivel de abstracción como por ejemplo preguntando por qué versus preguntar cómo (Fujita, Trope, Liberman y Levin-Sagi, 2006, Experiment 2), o a través de la creación de categorías superordinadas versus subordinadas (Fujita et al., 2006, Experiment 3).

Fujita y colaboradores (Fujita et al., 2006) proponen una conceptualización de lo que sería la auto-regulación (ellos usan el término self-control) basado en la CLT. Sugieren que la auto-regulación se caracteriza por actuar de acuerdo a altos y globales niveles de *construal* en lugar de bajos y locales niveles de *construal*. En este sentido, la auto-regulación se beneficiaría de ver el bosque más allá de los árboles (Fujita, et al., 2006). Fujita y colaboradores cuando proponen su modelo de auto-regulación hacen referencia a modelos anteriores, respecto a los cuales no sugiere que su modelo sea incompatible. En este sentido propone un análisis de la auto-regulación basado en la CLT que integraría otras aproximaciones. Las aproximaciones a las que se refieren son: la propuesta de Baumeister y colaboradores (v.g., Baumeister & Hetherton, 1996; Muraven & Baumeister, 2000) de que la regulación consiste en ejercer un control

deliberado para inhibir rutinas y acciones automáticas; la sugerencia de otros autores que basan la auto-regulación en actuar de acuerdo a los resultados a largo plazo en lugar de los resultados a corto plazo (v.g., Trope y Fishbach, 2000); la distinción de Loewenstein (1996) entre respuestas viscerales y racionales, donde la auto-regulación sería actuar de acuerdo a preferencias racionales; y finalmente en esta misma línea, la diferenciación de Mischel y colaboradores (2008) entre sistemas fríos y calientes, donde la auto-regulación sería la activación del sistema frío (que guía el comportamiento de forma contemplativa, reflexiva) sobre el sistema caliente (que guía el comportamiento basándose en apetitos, impulsos, etc.). Así pues, basándonos en la CLT, La autorregulación se vería mejorada si las personas realizasen una construcción de la situación en términos de altos CL. Enlazando con lo dicho anteriormente, altos CL conllevarían normalmente esfuerzos de auto-regulación deliberados, fríos, racionales y basados en el largo plazo.

Para comprobar si la construcción de la situación en altos CL mejora la auto-regulación, se han llevado a cabo varios estudios. En uno de los estudios se medía el comportamiento real en una tarea que requería regulación (Fujita, et al., 2006). En concreto, se les preguntaba a los participantes por el porqué de mantener la salud física (alto CL) o por el cómo mantener la salud física (bajo CL) y posteriormente se les pedía que sujetaran tanto tiempo como pudieran un *handgrip* deportivo (material de musculación de manos y antebrazo). Las personas que habían estado en la condición de alto CL aguantaron más tiempo que los de bajo CL. En otro de los estudios se medía la evaluación de las tentaciones como variable dependiente considerando que una valoración más positiva era indicativa de más posibilidades de fallar en la auto-regulación. A este respecto encontraron que un alto CL hacía que los participantes evaluaran menos positivamente las tentaciones pero sólo cuando la meta (para la que

representaban tentaciones) era importante para ellos. Cuando la meta no era importante, no había diferencias entre alto y bajo CL a la hora de evaluarlas (Fujita, et al., 2006). Sus conclusiones generales sobre los estudios llevados a cabo resaltan que la activación de altos CL conduce a una mejor auto-regulación y sugiere que activar altos CL a través de altas distancias psicológicas también debería llevar a una mejor auto-regulación. Así mismo destaca también que sus resultados nada dicen al respecto del consumo de recursos regulatorios y el posible ego-depletion a través de este tipo de regulación y que podría ocurrir que aunque los altos CL llevan a las personas a tomar decisiones más acordes con sus metas, al mismo tiempo no dispusieran de los recursos necesarios para llevarlas a cabo. (Fujita, et al., 2006). Parece importante por lo tanto encontrar estrategias que aseguren una auto-regulación eficaz no sólo en orientar a los valores y metas sino en mantener los recursos necesarios para llevarla a acabo.

## MODEL OF ACTION PHASES

Nuestro punto de partida para el estudio de la auto-regulación en la presente investigación es el llamado modelo de fases de acción o *Rubicon model of action phases* (ver Figura 3) propuesto originalmente por Heckhausen y Gollwitzer (Heckhausen & Gollwitzer, 1987) y posteriormente desarrollado por Gollwitzer según aumentaba la evidencia empírica (Gollwitzer, 1990, 1999, 2012). Partimos de este modelo pues como ya hemos apuntado nos parece importante la distinción realizada entre el establecimiento de metas o *goal setting* y el esfuerzo por conseguir las mismas o *goal striving* (Gollwitzer, 1990). Los autores del modelo quisieron recoger esta distinción precisamente tomando como referencia la ya hecha por Kurt Lewin tiempo atrás refiriéndose a la diferenciación necesaria entre estos dos procesos gobernados aparentemente por principios psicológicos distintos (Achtziger & Gollwitzer, 2008;

Gollwitzer, 1990). A través del modelo de fases de acción sus autores quisieron no sólo recoger esta distinción sino también unir ambos procesos en un solo modelo teórico aportando una perspectiva temporal al proceso desde el momento en que los deseos y aspiraciones de la persona aparecen (antes del propio establecimiento de las metas) hasta el momento en que la persona echa la vista atrás y evalúa como fue la consecución de sus metas.

El modelo de fases de acción trata responder a diferentes preguntas: ¿cómo eligen las personas sus metas? ¿Cómo planifican la consecución de las mismas? ¿Cómo llevan a cabo esa planificación? ¿Cómo evalúan sus esfuerzos y resultados respecto a la propia consecución de la meta? De las propias preguntas que plantea se puede observar el enfoque que sigue el modelo. Éste propone que durante el curso de la acción del comportamiento dirigido a metas, se dan una serie de fases diferenciadas que aparecerían de forma consecutiva. La principal diferenciación se encuentra entre un momento inicial de selección de las metas o *goal setting* y el punto a partir del cual se da la aproximación a las mismas o *goal striving*. Los autores sugieren que la no clarificación de estos dos aspectos en el campo de la motivación no sólo generó confusión durante un tiempo, sino que incluso durante ese periodo de tiempo la existencia de los procesos relacionados con la volición se negara (Heckhausen, 1991; Gollwitzer, 1990). Además de esa diferenciación principal, el modelo especifica cuatro fases bien diferenciadas que describen fenómenos psicológicos cualitativamente diferentes. Cada fase cumple además una función diferencial que a su vez está asociada a un estado mental o *mindset* diferente. Estas cuatro fases se describen gráficamente en la figura XXX y son las siguientes (Achtziger & Gollwitzer, 2008; Gollwitzer 2012):

**Fase pre-decisional.** Es la primera de las fases y se caracteriza principalmente por un estado de deliberación en el que el individuo se encuentra decidiendo entre los

distintos objetivos y aspiraciones. El objetivo de esta fase es por lo tanto decidir cuáles de ellos realmente se desea intentar alcanzar. Valoraciones como la deseabilidad o el valor otorgado a cada uno así como la posibilidad de conseguirlo se tienen en cuenta en esta fase. No obstante, es importante señalar que cualquier deseo o idea abstracta por mucho valor que se le pueda otorgar ha de ser transformada en una meta concreta a la hora de poder establecer un camino de acción hacia la consecución de la misma. Esto es lo que en el modelo de fases de acción los autores llaman el paso del Rubicón. Una vez pasado ese punto pasamos de un estado de deliberación a un estado de compromiso con la meta concreta. A partir de este momento se pasaría a la siguiente fase.

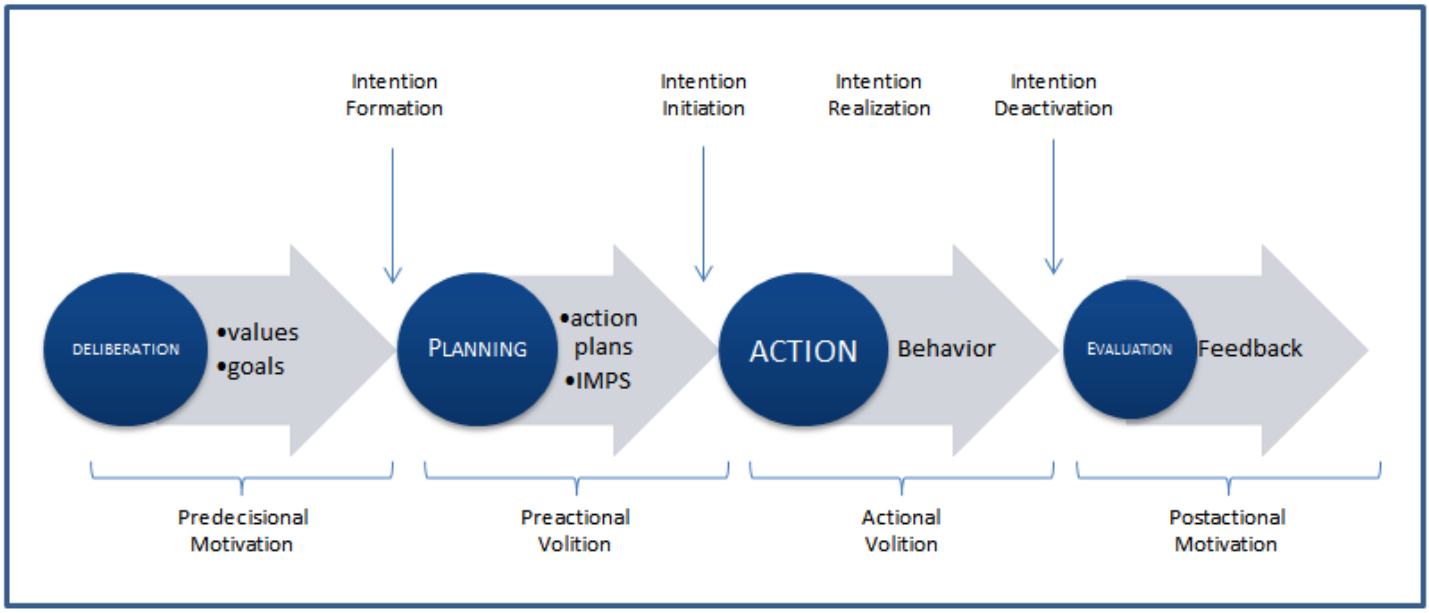



Figure 3.-Rubicon model of action phases (adapted from Achtziger & Gollwitzer, 2008; Heckhausen & Gollwitzer, 1987)

**Fase pre-acción.** La mayoría de las veces las metas no pueden conseguirse al momento de haber tomado la decisión de encaminarse hacia ellas. Al contrario, normalmente las personas tienen que realizar varias cosas a la vez, otras veces requieren de un tiempo necesario hasta poder conseguirlas, esperar a que se dé la oportunidad de

que esté presente el momento de llevarlo a cabo, etc. También pueden surgir tentaciones y distracciones que pueden desviarnos de nuestro objetivo y multitud de circunstancias pueden darse que condicionen no sólo el tiempo que se tarde en empezar o en alcanzar la meta, sino también el propio éxito o fracaso. En esta fase por lo tanto, lo característico es que los individuos determinan cual sería la mejor manera de conseguir las metas ya elegidas. Esta es por tanto la fase de planificación en el que las personas pueden desarrollar diferentes estrategias (ver más abajo) para alcanzar sus metas con éxito.

**Fase de acción**. En esta fase se inicia la acción o acciones encaminadas propiamente a la consecución de la meta. En esta fase la consecución de la meta no sólo depende de la iniciación de la acción encaminada a la misma, sino también del mantenimiento de la misma. Ambos aspectos vienen determinados entre otras cosas por la fuerza de la representación mental de la propia meta elegida (de forma consciente o inconsciente), así como de las estrategias planificadas en la anterior fase para superar las posibles dificultades.

**Fase post-acción.** Cuando las acciones ya se han completado las personas evalúan sus resultados tanto en relación con las acciones llevadas a cabo como en relación al resultado. Al mismo tiempo deliberan también sobre sus acciones futuras y el estado de sus metas. Esta última fase al igual que la fase pre-decisional son consideradas fases motivacionales, mientras que las fases de pre-acción y acción serían fases volitivas.

Como se mencionaba anteriormente, cada una de estas fases asume una función que está a su vez asociada a un estado mental o *mindset*[5] diferente. En concreto los

[5] A partir de ahora usaremos el término en inglés para referirnos a ello por una cuestión de economía lingüística y uso común en el lenguaje científico.

*mindsets* que propone el modelo como asociados a las distintas fases serían: deliberativo, de implementación, de acción y evaluativo respectivamente.

## MINDSETS

El concepto de *mindset* se emplea para referirse a una orientación cognitiva que produce una preparación o disposición a responder de una forma determinada (Gollwitzer, 1990). El concepto de mindset se emplea para responder preguntas como: ¿qué tipo de procesos cognitivos permite facilita las distintas fases de acción? Gollwitzer recurrió al concepto de mindset al encontrar resultados contradictorios a lo esperado en sus investigaciones iniciales sobre las fases de acción (Heckhausen & Gollwitzer, 1987). Acudió a este concepto que ya fue propuesto años atrás por psicólogos de la escuela de Würzburg (i.e, Külpe (1904); Marbe (1915), cf. Gollwitzer, 2012) quienes habían acuñado el término al descubrir que cuando uno se encuentra muy involucrado en la ejecución de una tarea, este mismo hecho activa precisamente los procesos cognitivos que ayudan a la propia ejecución de la tarea. Aunque los *mindsets* faciliten la ejecución de una tarea, no son orientaciones específicas de una tarea en particular, sino que deben ser más generales que aquellas que se necesitan estrictamente para completar la tarea (Freitas, Gollwitzer, & Trope, 2004). Representan una disposición global no particular a características específicas.

Las personas pueden cambiar entre distintos *mindsets*, no están anclados en uno concreto. Se pueden activar diferentes *mindsets* en función de las demandas de la situación o las metas personales (Hamilton, Vohs, Sellier & Meyvis, 2011). Los *mindsets* pueden activarse por medio de control ejecutivo y como tal se cree que consumen recursos de auto-regulación (Baumeister, Vohs, & Tice, 2007; Hamilton, et al., 2011) o se pueden activar sin un control voluntario de la persona por ejemplo a través de *primings, goal contagion,* etc (Bargh & Chartrand, 2000). Lo importante es

que una vez activados pueden permanecer activos más allá de la tarea inicial y por tanto influenciando tareas posteriores y no relacionadas (Freitas, et al., 2004; Hamilton, et al., 2011).

En el modelo de fases de acción se propone que durante la fase pre-decisional prima un mindset deliberativo que se caracteriza por atender a información relativa a los incentivos o consecuencias positivas así como las negativas de conseguir las diferentes metas y también a la información relativa a la posibilidad de conseguirlas. Por otro lado, durante la fase pre-acción se espera un mindset de implementación. En este sentido las tareas de planificación requieren por un lado estar receptivo a información relevante al cómo, cuándo y dónde llevar a cabo las acciones requeridas presentando cierto grado de cerrazón mental, para poder concentrarse en la información relevante para encontrar la oportunidad de actuar protegiendo al individuo de distracciones u otras metas incompatibles (Achtziger & Gollwitzer, 2008). El modelo apunta a que procesar con determinado grado de apertura mental sería disfuncional en esta fase mientras que reducirla a favor de procesar sólo la información relevante para la ejecución de las metas elegidas debería favorecerlo (Gollwitzer, 2012). Un dato curioso en la diferenciación entre el mindset deliberativo y el de implementación es relativo al optimismo ilusorio: las personas que no han tomado aún una decisión y se encuentra bajo un mindset deliberativo son más realistas y presentan menos sesgos que las personas que ya han tomado una decisión y por lo tanto "defienden" la decisión siendo más optimistas sobre sus posibilidades de éxito y fijándose más en los pros que en los contras de su decisión (e.g., Gagne & Lydon, 2001; Harmon-Jones & Harmon-Jones, 2002; Puca, 2001).

Por otro lado, en la fase de acción se propone un mindset de acción. El término que en sí mismo no da mucha más información, se refiere a un estado parecido a la

experiencia de *flow* (e.g., Csikszentmihalyi, 1990). Las personas orientadas cognitivamente a la acción están centradas en la tarea, absorbidos por la propia acción que están llevando acabo. No evalúan o consideran alternativas, tampoco organizan nuevos planes de acción, simplemente actúan y atienen a los aspectos del "yo" y del entorno involucrados en la propia acción. Este tipo de *mindset* se dará cuando la persona esté llevando a cabo eficazmente la consecución de sus metas. Finalmente, en la fase de post-acción el mindset correspondiente es un mindset evaluativo. Las personas están orientadas a comparar resultados y estados deseados.

Desde otras teorías diferentes también se propone que las personas pueden utilizar orientaciones cognitivas cualitativamente diferentes cuando llevan a cabo una actividad aunque no utilizan el término mindset para referirse a ello, sin embargo son ideas equivalentes que han dado lugar a investigaciones relacionando ambos aspectos (e.g., Freitas et al., 2004). Por ejemplo, teorías como la *Regulatory Focus Theory* (Higgins, 1997) que especifica que las personas persiguen sus metas adoptando o bien una orientación de aproximación a conseguir objetivos (promoción) o bien una orientación a ganar seguridad y minimizar pérdidas (prevención). O por otro lado, la ya mencionada *Construal Level Theory* propuesta por Trope & Liberman (e.g., 2003, 2010) donde se plante que las personas pueden adaptar distintos niveles de abstracción y concreción respecto a un objeto. Como veremos, precisamente esta última teoría toma un lugar importante dentro del contexto de la presente investigación.

## IMPLEMENTATION INTENTIONS: AUTOMATIC SELF-REGULATION OF CONSCIOUS GOALS?

Las intenciones de implementación consisten en la formación de **planes si-entonces** que responden al siguiente formato: "Si me encuentro en la situación X, entonces haré

Z". Donde Z sería un comportamiento concreto orientado a la meta deseada (Gollwitzer, 1990, 1999). De esta forma crean un link entre la situación crítica y la respuesta concreta que está orientada a la meta. Esta característica es crucial para diferenciarlas de las metas o intenciones de meta que tendrían la forma: "(Yo) quiero alcanzar Y", donde Y sería la meta deseada. Ejemplos de metas serían: "Quiero ser un buen estudiante". Ejemplo de intención de implementación respecto a esa meta sería: "Si no me apetece estudiar, entonces observaré esa sensación y estudiaré durante 1 hora". Las intenciones de implementación están subordinadas a las metas y son planes elaborados conscientemente para llevar a cabo un comportamiento concreto y relevante en relación a esa meta y ante una situación esperada (Gollwitzer, 1999). Este comportamiento concreto se iniciaría de forma casi inmediata y sin esfuerzo una vez que se detectara la situación crítica. Por lo tanto en ese momento ya no requeriría de un acto voluntario y consciente sino más bien de una respuesta automática desencadenada por la situación crítica. La diferencia con un hábito sería que no es necesaria la repetición durante un largo periodo de tiempo sino que esa automaticidad se produciría inmediatamente después de haber creado la asociación entre la situación crítica y el comportamiento deseado (Gollwitzer, Parks-Stamm, Jaudas, & Sheeran, 2008). En consecuencia, ese link mental creado por la intención de implementación facilitaría la consecución de las metas al anticipar la situación crítica (componente-si) y la respuesta específica (componente-entonces) y ayudar a generarla de forma automática.

Los mecanismos que parece que subyacen a la eficacia de las intenciones de implementación serían la **accesibilidad** y la **automaticidad** que como consecuencia reduciría el esfuerzo de la propia auto-regulación. Al formar una intención de implementación la situación crítica futura (componente-si) se considera altamente activada y por lo tanto más accesible. Esta hipótesis se ha comprobado en una serie de

estudios dando lugar a resultados que apoyan la misma. Por ejemplo, uno de los primeros estudios llevados a cabo donde los participantes que había formado intenciones de implementación (en comparación con quienes sólo tenían intenciones de meta) respondían más rápidamente en una tarea de toma de decisiones léxicas a las palabras que estaban relacionadas con la situación crítica (Aarts, Dijksterhuis, and Midden, 1999). En otros estudios en los que se medía cómo los participantes atendían y recordaban la situación crítica (comparada con participantes que sólo habían formado intenciones de meta) se observó que los participantes que habían generado intenciones de implementación cambiaban su foco de atención hacia palabras que describían la situación crítica cuando éstas aparecían como interrupciones de una tarea no relacionada, mientras que esto no ocurría con los participantes que sólo tenían intenciones de meta. Igualmente encontraron que el recuerdo de las situaciones críticas perduraba durante más tiempo en participantes que habían formado con ellas una intención de implementación que aquellos que no lo había hecho (Achtziger, Bayer, & Gollwitzer, 2012). En la misma línea otros estudios comprobaron que no sólo se interrumpía la atención en la tarea presente cuando aparecía una señal relacionada con la situación crítica en aquellos participantes que habían formado intenciones de implementación, sino que además este efecto permanecía en tareas posteriores (Wieber & Sassenberg, 2006). El hecho de que se produzca una mayor accesibilidad de la situación crítica, también se ha visto que produce que se atienda menos a situaciones alternativas, prestando atención a la situación crítica que forma parte del plan si-entonces (Parks-Stamm, Gollwitzer, & Oettingen, 2007). A su vez en otros estudios se encontró que al formar intenciones de implementación los participantes (comparados con simples intenciones de meta) no sólo hacía que detectaran las claves más rápidamente, sino que lo hacían de forma precisa (sin cometer falsos positivos) incluso cuando la detección de estas situaciones era especialmente difícil (Webb & Sheeran,

2004). Los efectos de las intenciones de implementación se han encontrado incluso en comparación con hábitos muy establecidos. Cuando se utilizaba la situación crítica de un hábito (v.g., montar en bicicleta) y se asociaba a una respuesta alternativa a través de un plan si-entonces, la accesibilidad de esa respuesta alternativa se volvía igual de accesible que la del hábito profundamente establecido, dando lugar así a que las personas pudieran elegir entre un comportamiento u otro (Adriaanse, Gollwitzer, de Ridder, de Wit, & Kroese, 2011). Papies y colaboradores mostraron que los efectos de enlazar la situación crítica con el comportamiento van más allá de simplemente asociar ambos conceptos sin establecer el formato si-entonces y que sus efectos diferenciales se podían observar hasta una semana después de que los experimentos se realizaran (Papies, Aarts, & de Vries, 2009).

Por otro lado veíamos que se propone que las intenciones de implementación actúan de forma automática. Aparentemente, cuando la situación crítica se da, la iniciación de la acción encaminada a la meta no requiere de un intento consciente (Bargh, 1996; Gollwitzer & Schaal, 1998; Gollwitzer & Sheeran, 2006). Las personas pueden elegir auto-regularse de una forma consciente y que requiere esfuerzo como sería el caso de las intenciones de meta, o cambiar a una forma de regulación automática y que requiere menos esfuerzo como sería el caso de formar intenciones de implementación (Gollwitzer, 2012). La hipótesis de la automatización se ha puesto a prueba en varios estudios que medían la inmediatez, eficiencia y la presencia o ausencia de intentos conscientes respecto de comportamiento previamente planeado. En uno de los primeros estudios probando esta hipótesis, los autores mostraron pruebas de la inmediatez de la acción al encontrar que los participantes que habían formado previamente intenciones de implementación especificando un plan para presentar contra-argumentos a una serie de comentarios racistas, iniciaban mucho antes la contra-argumentación que los

participantes que sólo tenían la intención de hacerlo (Gollwitzer & Brandstätter, 1997). En otros estudios donde los participantes se enfrentaban a tareas más demandantes, también se mostró que las intenciones de implementación iniciaban la acción antes. Todos los participantes tenían la meta de presionar un botón especialmente deprisa cuando el número 3 apareciera en pantalla además de estar realizando simultáneamente otra tarea (memorizar unas letras, Study 3; una tarea de rastreo, Study 4). Sin embargo sólo los participantes con un plan si-entonces para esa meta pulsaban el botón más deprisa (Brandstätter, Lengfelder, & Gollwitzer, 2001). Respecto a la toma de conciencia Bayer y colaboradores comprobaron que las intenciones de implementación llevan a la iniciación de la acción sin intentos conscientes de hacerlo a través de varios experimentos que presentaban la situación crítica de forma subliminal. Los resultados mostraron que no sólo se activaba la situación crítica subliminalmente sino que además los participantes respondían más rápido a palabras relacionadas con la misma que los que sólo tenían la intención de meta (Bayer, Achtziger, Gollwitzer, & Moskowitz, 2009). Enfocándolo de otra manera, Webb y Sheeran (2008) para comprobar si efectivamente la hipótesis de que las intenciones de implementación descansan sobre procesos no conscientes (versus conscientes o deliberativos) realizaron en primer lugar un meta-análisis sobre distintos estudios donde se utilizaban intenciones de implementación con el fin de ver el peso que podrían tener los factores asociados a procesos deliberativos (v.g., autoeficacia, compromiso con las metas, etc.) en la eficacia de las intenciones de implementación. A partir de este meta-análisis concluyeron que los procesos deliberativos no explicaban el impacto de las intenciones de implementación en la consecución de las metas. En segundo lugar diseñaron un estudio similar al de Aarts y colaboradores (1999) para investigar si la accesibilidad de los componentes si y entonces podría explicar la eficacia de las intenciones de implementación. La accesibilidad de las situaciones críticas se midió como la latencia

de respuesta a las palabras relacionadas con la situación crítica; la fuerza del link entre la situación crítica y el comportamiento se midió como la latencia de respuesta ante palabras relacionadas con el comportamiento después de haber recibido un *priming* de las situaciones críticas. El comportamiento final (conseguir o no la meta) fue contabilizado a partir del comportamiento real. Sus resultados mostraron que efectivamente se mostraba más accesibilidad en los participantes que habían formado intenciones de implementación y que la accesibilidad así como la fuerza del link entre la situación crítica y el comportamiento mediaban los resultados obtenidos sobre el comportamiento final.

Más evidencia de que las intenciones de implementación funcionan por procesos automáticos se puede extraer de los estudios en los que se relaciona la auto-regulación a través de planes si-entonces y el efecto de agotamiento de recursos de regulación o *ego-depletion* propuesto por Baumeister y colaboradores (Baumeister, Bratlavsky, Muraven,& Tice, 1998). En dos estudios, Webb y Sheeran (2003) mostraron como los participantes que habían formado intenciones de implementación durante una tarea inicial demandante de recursos de regulación (*ego-depleting*), mostraban mucha más persistencia en una tarea posterior que era irresoluble (Experiment 1) y mejor rendimiento en una tarea Stroop (Experiment 2) que aquellos que no habían formado planes si-entonces. En otro estudio la mitad de los participantes pasaban por una tarea de control emocional y la otra mitad no; posteriormente se medía el rendimiento de todos ellos en una tarea posterior consistente en resolver anagramas de especial dificultad. Todos los participantes tenían la siguiente intención de meta: “Encontraré tantas soluciones como sea posible”. Sin embargo, sólo la mitad de los participantes tenían además el siguiente plan si-entonces: “Si he resuelto un anagrama, entonces empezaré inmediatamente a trabajar sobre el siguiente”. Los resultados mostraron que

sólo los participantes que pasaron por el control emocional en la condición de plan si-entonces mantenían el mismo nivel de rendimiento que los participantes en la condición de intención de meta sin control emocional. Los participantes sin control emocional y con plan si-entonces mantenían el mismo nivel que los de meta sin control emocional aunque un poco más elevado que los de intenciones de implementación y control emocional (Bayer, Gollwitzer, & Achtziger, 2010).

Partiendo de la evidencia empírica Gollwitzer y Oettingen (2011) sugieren que hay varios moderadores de la eficacia de las intenciones de implementación: el compromiso con la meta (*commitment*), la auto-eficacia, la dificultad de la meta, la debilidad de la meta y la consciencia (como característica personal). Respecto al **compromiso** con la meta. Para que los efectos de las intenciones de implementación se den las personas tienen que estar comprometidas con las metas a las que las intenciones de implementación sirven (Gollwitzer, 1999; Sheeran, Webb y Gollwitzer, 2005; Achtziger, Bayer y Gollwitzer, 2012), por lo que funcionan mejor si son metas auto-concordantes en el sentido de que provengan de la motivación intrínseca de la persona (Koestner, Lekes, Powers y Chicoine, 2002) y si la meta se encuentre activada (Sheeran, et. Al., 2005).

La **autoeficacia** también parece moderar los efectos de las intenciones de implementación. Por ejemplo, Koestner y colaboradores (Koestner, Horberg, Gaudreau, Powers, Di Dio, Bryan et al., 2006) compararon los efectos por un lado de las intenciones de implementación sobre metas personales (propósitos de año nuevo) y por otro lado de las intenciones de implementación junto con una intervención en auto-eficacia (tres tareas distintas para aumentar la percepción de auto-eficacia). Encontraron que los participantes de esta segunda condición informaban de un mayor progreso en la consecución de las metas planteadas veinte semanas después de la intervención. En otro

estudio (Wieber, Odenthal y Gollwitzer, 2010) también se manipuló la autoeficacia, aunque en este caso había un grupo con baja autoeficacia y otro grupo con alta autoeficacia. En sus resultados observaron que las intenciones de implementación de los participantes del grupo de alta auto-eficacia mostraron mejores efectos que los de baja autoeficacia y que en concreto esta diferencia se acentuaba más cuando las metas a conseguir eran difíciles (vs. fáciles).

Otra variable que puede moderar el efecto de las intenciones de implementación es la **dificultad de la meta** (Gollwitzer & Sheeran, 2006). Cuando las metas no resultan difíciles los efectos de las intenciones de implementación son similares a los efectos de las intenciones de meta (Gollwitzer y Brandstätter, 1997). Por ejemplo, en la comparativa al realizar una segunda tarea entre participantes que habían sido previamente sometidos a una tarea de regulación que producía ego-depletion (más difícil) y los que no habían pasado por ella (más fácil), las condiciones de intenciones de meta y las intenciones de implementación mostraban resultados similares cuando la tarea resultaba más fácil mientras que no así cuando era difícil (Bayer, Gollwitzer y Achziger, 2010). En un estudio que comprobaba los efectos de las intenciones de implementación para mejorar la asistencia a clase en estudiantes, se observó que los estudiantes que no consideraban difícil la auto-regulación para ir a clase y hacer sus tareas no se beneficiaban de las intenciones de implementación en este sentido. Sin embargo sus compañeros que les costaba más atender y asistir a todas las clases sí lo hacían (Webb, Christian y Armitage, 2007). En otro tipo de estudios se comparaban estudiantes de población normal y pacientes con daño cerebral que tenían problemas de control ejecutivo. Las intenciones de implementación resultaban mucho más beneficiosas para estos últimos que para los estudiantes (Lengfelder y Gollwitzer, 2001).

A parte del estudio de los procesos de funcionamiento de las intenciones de implementación y los posibles moderadores de las mismas, la mayoría de estudios sobre intenciones de implementación se han centrado en **probar su eficacia en muy diversas áreas**. En este sentido el meta-análisis de Gollwitzer y Sheeran (2006) señala hacia un efecto medio-grande (*d*=.65) de las intenciones de implementación y la consecución de metas. Del análisis de 94 estudios (88% de tipo experimental) concluyeron que las intenciones de implementación mejoraban la habilidad de las personas para iniciar las acciones propuestas, mantenerse en el camino hacia las metas (persistir, no decaer, etc.), desengancharse de posibles distracciones y tentaciones (internas o externas) y llevar a cabo por tanto una auto-regulación que aumentaba la probabilidad de que alcanzar las metas con éxito. Estos efectos se encontraron independientemente del ámbito de aplicación, de si los estudios eran experimentales o no y de si las medidas eran de auto-informe o de comportamiento (see meta-analysis, Gollwitzer & Sheeran, 2006). Ejemplos de la variedad de ámbitos de aplicación donde la formación de intenciones de implementación mejoraba la consecución de metas son: recordar la toma de medicamentos (Sheeran & Orbell, 1999) evitar distracciones durante los exámenes (Gollwitzer & Schaal, 1998) hacer dieta (Achtziger, Gollwitzer, & Sheeran, 2008), persistir ante el cansancio en ejercicios deportivos (Achtziger, Gollwitzer, & Sheeran, 2008), persistencia en tareas aburridas (Milne & Sheeran, 2002), cumplir metas personales (Koestner, Lekes, Powers, & Chicoine, 2002) y un largo etc. Sin embargo, aunque hay numerosos estudios en el contexto de la salud, también estudios sobre metas concretas personales e incluso sobre el ámbito deportivo, que seamos conscientes, ningún estudio experimental se ha encontrado que analice por ejemplo situaciones más complejas en un ámbito como el entorno laboral. En la presente investigación sobre intenciones de implementación, mindfulness y distancia psicológica centraremos una parte de los estudios precisamente en este ámbito. Finalmente, para cerrar la presente

introducción teórica exponemos el concepto de *mindfulness* junto con algunas de sus aproximaciones teóricas.

## MINDFULNESS

Cuando se habla de auto-regulación se ha de considerar el la atención o consciencia plena o *mindfulness*. La investigación muestra que breves instrucciones de mindfulness ayudan a restaurar los recursos regulatorios (Friese, Messner, & Schaffner, 2012) y muestran numerosos beneficios para la salud psicológica como reducción de síntomas negativos y de la reactividad emocional (Keng, Smoski, & Robins, 2011). Sin embargo, poca investigación experimental hay sobre mindfulness y poco se conoce sobre los procesos por los que mindfulness puede estar produciendo sus efectos beneficiosos (Davidson, 2010; Erisman & Roemer, 2010; Hill & Updegraff, 2012).

### ¿Qué es mindfulness?

*Mindfulness* a veces se presenta como una estrategia de auto-regulación (de nuestras reacciones, emociones y pensamientos); otras se integra como una técnica dentro de otras terapias, otras es una intervención completa en sí mismo, y otras veces se considera como una filosofía de vida.

El *mindfulness* hunde sus raíces en la tradición budista, pero fue convertida en objeto de estudio por parte la psicología científica hace algunas décadas. Se han ofrecido diversas definiciones operativas y descripciones del *mindfulness*. Kabat-Zinn (1991) fue uno de los primeros investigadores que implementó intervenciones en el campo de la salud basadas en el *mindfulness*, el cual describe como una forma especial de prestar atención, a saber, intencional, centrada en el momento presente y desde una actitud de no enjuiciamiento hacia las experiencias emergentes. Desde el paradigma cognitivo, Baer (2003) ha definido los mecanismos de funcionamiento del *mindfulness*

desde el punto de vista clínico: exposición, cambio cognitivo, auto-gestion (Self-Managment), relajación y aceptación. Bishop y sus colegas (Bishop, Lau, Shapiro, Carlson, Anderson, Carmody, et al., 2004) establecen un modelo basado en dos componentes principales. Por un lado, el de la autorregulación de la atención, que implica procesos de atención sostenida, cambio de atención y una forma de consciencia no elaborativa. Por otro lado, el de la actitud en la orientación hacia la experiencia, que se caracteriza por la aceptación, la curiosidad y la capacidad de *insight* sobre la naturaleza de los pensamientos y las emociones.

También desde el paradigma cognitivo pero desde la psicología social, Brown, Ryan y Creswell (2007) enumeran las seis características principales: claridad de consciencia, consciencia no conceptual y no discriminativa, flexibilidad de la atención y la consciencia, posicionamiento empírico hacia la realidad, consciencia orientada hacia el presente y estabilidad o continuidad de la atención o consciencia. Por otro lado, Langer y sus colaboradores ofrecen una definición de *mindfulness* que dista en algunos aspectos de las anteriores. Su modelo refiere a un proceso cognitivo y creativo caracterizado por tres rasgos: creación continua de nuevas categorías, apertura a la información novedosa y alerta implícita desde más de una perspectiva. Langer opone el proceso de *mindfulness* al de *mindlessness*, que podría ser traducido como ausencia de consciencia o atención. El proceso de *mindlessness* se caracterizaría así por el estancamiento en categorías antiguas, un comportamiento automático y rígido que obstaculiza la detección de señales novedosas y una forma de actuar que opera desde una sola perspectiva (Langer, 1989, 1997).

Desde el paradigma del contextualismo funcional, Hayes y colaboradores (Hayes, et al., 2012) han tratado de ofrecer una definición de *mindfulness* coherente con la *Teoría del Marco Relacional* (Relational Frame Theory). Dicha teoría postula que el

lenguaje y la cognición humanas poseen una naturaleza relacional, de tal modo que respondemos ante el contenido de los eventos privados (p. ej., un recuerdo doloroso) de la misma manera si estuvieran ocurriendo en el momento presente. Estos repertorios conductuales se denominan fusión cognitiva (*cognitive fusion*) y tienden a crear la ilusión permanente de estar en otro lugar o tiempo, ajenos al presente inmediato. Desde este punto de vista, los repertorios conductuales implicados en el *mindfulness* serían opuestos a los arriba mencionados, pues su expresión debilitaría las funciones literales del lenguaje y la cognición. La persona ya no responde ante el contenido de los eventos privados (p. ej., la muerte de un ser querido), sino ante el proceso que está teniendo lugar (p. ej., el proceso de experimentar un recuerdo).

*Mindfulness* ha sido estudiado principalmente en el contexto de la salud psicológica y el bienestar (Keng, Smoski, Robins, 2011) y la principal fuente de evidencia empírica proviene de intervenciones y de estudios donde se ha medido el *mindfulness* a nivel de rasgo. No obstante, hay algunos estudios que han manipulado el *mindfulness* como estado encontrándose resultados positivos para la regulación emocional (Arch & Craske, 2006; Erisman & Roemer, 2010), la resolución de problemas (Ostafin & Kassman, 2012) y la capacidad de restaurar los recursos regulatorios contrarrestando así el fenómeno de *ego-depletion* (Friese, Messner, & Schaffner, 2012).

Las explicaciones y motivos expuestos hacen ver que resulta relevante incluir el *mindfulness* dentro de un estudio experimental en auto-regulación. Pero hay además una razón añadida en relación a la presente investigación: cuando se analizan las instrucciones de los ejercicios de *mindfulness* encontramos una dualidad curiosa, a la vez que se abstrae el "yo" como observador y se promueve la toma de perspectiva, también se hace hincapié en fijarse en los pequeños detalles de las situaciones presentes desde el punto de vista de ese yo-observador. El *mindfulness* pretende que entremos en

contacto con el momento presente, con el yo, aquí y ahora, tomando consciencia y "soltando el piloto automático". Presentando estas características, ¿cómo se relacionara el *mindfulness* con los distintos niveles de *construal* y distancia psicológica? ¿y con la estrategia concreta de intenciones de implementación? En la presente investigación trataremos de dar respuesta a estas preguntas.

# PARTE II: MEANWHILE IN THE LAB…

# CHAPTER 3:

# EFFECTIVE SELF-REGULATION OF WORKPLACE CONFLICT

**Abstract**

We studied whether dealing with demanding workplace conflict situations via implementation intentions is more effective in maintaining high in-role (primary individual task) and extra-role (helping colleagues) performance compared to emotion suppression and reappraisal strategies. Simulating a common workplace scenario (Study 1), participants in two experiments were engaged simultaneously in an individual and a group task in which they had to memorize information and help colleagues, while dealing with negative affect provoked by interruptions, time pressure, and a performance evaluation. In two experiments, we investigated the differential effects of dealing with a workplace conflict via a straightforward implementation intention as compared to classical reappraisal and suppression emotion-regulation strategies (Study2), or reappraisal and suppression strategies formulated in an implementation intention format (Study 3). Straightforward implementation intention strategies significantly benefited in-role and extra-role performance in comparison to suppression and reappraisal strategies (Study 2), and this held true even when they were furnished with respective implementation intentions (Study 3). Results are relevant for applied settings as implementation intentions were demonstrated to benefit performance in workplace conflict situations; as well as for basic research as we provide evidence of the effectiveness of implementation intentions when dealing with complex cognitive and emotional demanding situations.

## EFFECTIVE SELF-REGULATION OF WORKPLACE CONFLICT

Today's workplaces and lifestyles are characterized by an increasing amount of fragmented information, simultaneous activities, interruptions, and numerous inputs from electronic devices. In the workplace, this is a problem for performance (Appelbaum, Marchionni & Fernandez, 2008) and even satisfaction (Czerwinski, Horvitz & Wilhite, 2004). Handling multiple tasks and dealing with interruptions can create conflicts which are emotionally challenging (Baethge & Rigotti, 2013; Tolli, 2009), and thus dealing with emotions effectively is necessary to ensure productivity and life satisfaction. The current research examines the effects of different ways to deal with negative emotions on in-role (i.e., primary individual task) and extra-role (i.e., helping behavior) in workplace conflict situations.

### NEGATIVE EMOTIONS[1] AND PERFORMANCE

Imagine you are working on an important task but you are repeatedly interrupted by co-workers asking for help. You may find yourself in the frustrating situation that you cannot adequately help your coworkers without neglecting your own work, but you neither can dismiss the help-seeking coworkers as you depend on their contributions to the joint outcome. In the following we will argue based on various lines of past research that (1) such workplace conflicts induce negative affect, (2) that they impair performance, and (3) that traditional self-regulation strategies (i.e., the emotion regulation strategies of reappraisal and suppression) may not be helpful in dealing with this type of conflicts because the necessary cognitive resources are used up by the focal task. Finally, (4) we will introduce a straightforward self-regulation strategy based on if-then planning that is not hampered by resource constraints and

[1] We refer here to emotion in a broad sense of the experience. However, in our studies we are not measuring emotion, but affect.

therefore it can be expected to still be effective. Note that from now on we will refer to situations like this as workplace conflicts.

Applied research at the workplace shows that situations like the workplace conflict result in increasingly negative affect (Tolli, 2009), negative emotions such as irritation, detrimental effects on satisfaction with in-role performance, and even the forgetting of intentions (Baethge & Rigotti, 2013). Also, negative emotions and task conflict are predictive of both workplace deviant behaviors (Chen & Spector, 1992; Lee &Allan, 2002), and worse extra-role performance, like helping behavior (Rispens, 2009).

A considerable amount of research investigated the interplay between emotions and cognitive processes with the result that emotions in general can have positive and negative effects depending on the valence of the emotion and the nature of the cognitive processes involved (reviewed by Blanchette, & Richards, 2010). However, negative affect usually impairs subsequent cognitive performance. Even brief confrontations with negative stimuli can inhibit the processing of subsequent neutral information as shown in lexical decision tasks (Ihssen, Heim, & Keil, 2007), the Stroop task (McKenna & Sharma, 1995), and short-term memory performance (Dolcos, Kragel, Wang, & McCarthy, 2006; Dolcos & McCarthy, 2006). Sustained negative mood states and situational stressors also impair information processing (Alexander, Hillier, Smith, Tivarus, & Beversdorf, 2007; Ellis, Ottaway, Varner, Becker, & Moore, 1997; Sakaki, Gorlick, & Mather, 2011). Furthermore, reasoning about emotional topics, or while in an emotional state, handicaps normatively correct deductive reasoning (Blanchette, 2006; Blanchette & Richards, 2004; Goel & Dolan, 2003; Oaksford, Morris, Grainger, & Williams, 1996).

Accordingly, as workplace conflicts are known to be affectively charged it seems safe to assume that they do impair performance. If negative affect is the problem, would a strategy to deal with (down-regulate) the negative affective state offer a solution? Trying to answer this question one has to keep in mind that people in a workplace conflict are bogged down cognitively by trying to solve the focal task at hand.

## COSTS OF DEALING WITH EMOTIONS

Gross (1998) proposed a classification of emotion regulation strategies in which he differentiated between antecedent-focused and response-focused emotion regulation. An example of an antecedent-focused strategy is the reappraisal strategy, defined by Gross and colleagues (e.g., Gross, Richards, & John, 2006) as interpreting a potentially emotion-eliciting situation in a way that changes its emotional impact. An example of a response-focused strategy is the suppression strategy, defined as a form of response modulation that involves inhibiting ongoing emotion-expressive behaviors. But how cognitively demanding are these two emotion regulation strategies? Can they still be applied effectively when cognitive resources are reduced by being involved with an ongoing focal task? Regulation of complex tasks requires willpower which is assumed to be a limited resource that can get depleted (i.e., Baumeister, Bratslavsky, Muraven, & Tice, 1998; Baumeister, Vohs, & Tice, 2007; Hagger, Wood, Stiff, & Chatzisarantis, 2010). With respect to emotion regulation, Baumeister et al. (1998) showed that suppressing emotions in one task negatively affects performance in a subsequent demanding task. In line with these findings, Richards and Gross (2000) observed that response-focused emotion regulation (e.g., emotion suppression) impaired memory performance. However, antecedent-focused emotion regulation (e.g., emotion reappraisal) had no negative effects on memory performance. These differences were explained by the authors in terms of the point in time when the emotion regulation sets in. Whereas antecedent-focused regulation happens rather early in the emergence of the emotion and thus prevents the

emotion from occurring in the first place, response-focused regulation sets in when the emotion is already experienced and thus down-regulation requires more effort. As a preliminary conclusion, then, response-focused emotion regulation appears to be problematic in situations that are characterized by multiple resource constraining factors as is the case in workplace conflict situations. Antecedent-focused regulation, on the other hand, may be quite effective. But there is an additional factor that needs to be taken into account when dealing with the workplace conflicts: Resources are already limited as they are needed for working on the focal task and the conflicts created by its interference. Even if in general one wants to stay calm, the initiation of an emotion-regulation strategy may become quite difficult in such situations. Evidence for this getting-started problem can be found in research on working memory capacity and spontaneous emotion regulation. For example, it was observed that having more working memory capacity (compared to less) contributes to better spontaneous emotion regulation (Schmeichel & Demaree, 2010). Turning the argument around, having little working memory capacity as it is the case in workplace conflict situations should render spontaneous emotion regulation less likely. Thus, even though engaging in antecedent-focused emotion regulation is associated with little resource costs, people may fail to initiate it on time and thus antecedent emotion regulation may also turn out to be ineffective in workplace conflict situations.

In sum, both antecedent-focused and response-focused emotion-regulation strategies might not prevent the negative performance consequences of workplace conflicts. These conflicts are characterized by high cognitive load which should hinder getting started with antecedent self-regulation as well as prevent getting intensively engaged in response-focused emotion regulation, respectively. Accordingly, we were looking for an alternative strategy that operates effectively even when cognitive resources are limited.

## SELF-REGULATION BY IMPLEMENTATION INTENTIONS

Research on implementation intentions (i.e., if-then plans; Gollwitzer, 1999; Gollwitzer & Sheeran, 2006; Webb & Sheeran, 2003) shows that self-regulation via simple if-then plans exhibits characteristics of automaticity (i.e., effortless, efficient, and without another conscious intend) and could thus be used to reduce the effects associated with the negative affect (Webb, Schweiger Gallo, Miles, Gollwitzer, & Sheeran, 2012) in workplace conflict situations. The advantage of using implementation intentions is that the cognitively demanding part – the planning – is done at a non-critical time, when resources are still available. At the critical time, when the work place conflict is experienced, the planned actions run of automatically and thus no longer require much cognitive capacity. Implementation intentions are defined by Gollwitzer (1993, 1999) as if-then plans with the format: "If I encounter situation x, then I will perform response z!" thereby linking a critical situation with a goal-directed response. They are different from goal intentions as goal intentions ("I want to achieve y!") just specify a desired performance or outcome without linking it to a critical opportunity to act. In general, if-then planning increases the likelihood that the goal-directed behavior is actually performed in the critical situation. Two processes contribute to this effect.. The specification of the critical situation in the if-part results in a heightened readiness to perceive the critical situation (e.g., Achtziger, Bayer, & Gollwitzer, 2012; Parks-Stamm, Gollwitzer, & Oettingen, 2007; Webb & Sheeran, 2004, Studies 2 and 3; Wieber & Sassenberg, 2006) and the link created between situation and action delegates control to the situation (Aarts & Dijksterhuis, 2000; Aarts, Dijksterhuis, & Midden, 1999; Adriaanse, Gollwitzer, de Ridder, de Wit, & Kroese, 2011; Bayer, Achtziger, Gollwitzer, & Moskowitz, 2009; Brandstätter, Lengfelder, & Gollwitzer, 2001; Gollwitzer & Brandstätter, 1997, Study 3; Papies, Aarts, & de Vries, 2009; Webb & Sheeran, 2007; Webb & Sheeran, 2008). As a consequence, self-regulation by implementation intentions exhibits features of

automaticity (i.e., immediacy, efficiency, and no conscious involvement needed); it is thus cognitively less demanding than traditional self-regulation without implementation intentions (i.e., by mere goals or goal intentions) and thus depletes fewer resources. This has been demonstrated, for instance, by a study in which participants who formed implementation intentions to deal with demanding cognitive tasks such as the Stroop task did not become as ego-depleted as mere goal-intention participants, as evidenced by good performance in a subsequent task of tracing puzzles (Webb & Sheeran, 2003; Bayer, Gollwitzer, & Achtziger, 2010).

Thus, implementation intentions might be a viable strategy to deal with demanding workplace conflicts is further supported by past implementation intention research showing that if-then plans can be used to effectively cope with negative stimuli (Schweiger Gallo, Keil, McCulloch, Rockstroh, & Gollwitzer, 2009; Schweiger Gallo, McCulloch, & Gollwitzer, 2012; reviewed by Webb et al., 2012). Importantly, this research suggests that dealing with negative affect by if-then plans also shows features of automaticity (Schweiger Gallo et al., 2009). For example, Schweiger Gallo et al. (2009, Experiment 3) assessed electrophysiological (EEG) activity of spider-phobic participants being confronted with pictures of spiders. Spider-phobic participants with an implementation intention ("If I see a spider, then I will ignore it!") showed lowered negative affect when facing spider pictures (in self-report measures). Most importantly, they also showed a lower positivity of the P1, an event-related potential that appears within 100 ms after stimulus onset and that has been shown to discriminate between affective stimulus content (high-arousing negative stimuli elicit larger P1 amplitudes; Carretié, Hinojosa, Martín-Loeches, Mercado, & Tapia, 2004).

Apparently, implementation intentions help to deal with negative affect in a fast and effective manner. Therefore, they should also facilitate overcoming the performance-impairing effects of negative affect in workplace conflicts.

## THE PRESENT RESEARCH

In the current research, we tested whether implementation intentions are more effective in dealing with workplace conflicts compared to traditional emotion-regulation strategies. The indicator of effectively dealing with the conflict is the participants' in-role (focal memory task) and extra-role (helping behavior) performances. In two experiments, we confronted participants with a workplace conflict that is quite common in everyday life: Participants were performing a group task while being occupied by a focal personal task (paying attention to information presented on a screen in order to memorize its content). During the encoding of the presented information, participants were repeatedly interrupted by another group member (supposedly another participant) asking for help. As participants thought their final performance score would be determined by a 50/50 aggregate of the individual score and the mean group score, the participants were placed into a situation where helping the group member (extra-role performance) was important for the overall outcome but would also come at the cost of one's own performance contribution (in-role performance).

In a pilot study, we tested whether such a workplace conflict induces negative affect (i.e., is experienced as being unpleasant). Then, in Study 2, we assessed the effects of dealing with the workplace conflict via an implementation intention to stay calm and concentrated on in-role (memory) and extra-role performance (helping behavior) as compared to traditionally used emotion regulation strategies (reappraisal and suppression; e.g., Gross, Richards & John 2006). In Study 3, we replicated Study 2 and extended the emotion regulation strategies by also formulating the traditional strategies (reappraisal and suppression) in an if-then format. Rewording the traditional emotion regulation strategies (reappraisal and suppression) in terms of if-then plans should enhance their effects by making their enactment less demanding. However, specifying a negation in the then-part of an if-then plan has been shown to be ineffective in changing health behavior (Adriaanse, van Oosten, de Ridder, de Wit, & Evers,

2011), and thus a suppression implementation intention ("..., then I will *not* express my emotions so that I stay calm and concentrated!") may not be the best route to successful emotion regulation. Furthermore, a reappraisal implementation intention ("..., then I will try to think in a way so that I stay calm and concentrated!") specifies a very complex mental action. The plan does not simply specify the desired action (i.e., stay calm and concentrated) but demands to spontaneously come up with a way of thinking that could help staying calm. Therefore, in Study3 we also kept the straightforward if-then plan used in Study 2 and predicted that a straightforward implementation intention (i.e., "If a participant interrupts me, then I will stay calm and concentrated") leads to higher in-role and extra-role performance compared to traditional emotion regulation strategies, with the traditional emotion regulation strategies worded in the format of implementation intentions lying in between.

## STUDY 1: NEGATIVE AFFECT IN WORKPLACE CONFLICT SITUATIONS

In order to assess whether the workplace conflict situation designed for Study 2 and 3 did indeed trigger negative affect in the lab setting, we conducted a pilot study. In the pilot study, as well as in the two experiments, we measured two kinds of affective states: general mood and the valence and arousal of the immediate affective response to the interruption. As mood (Frijda, 2009; Fernández-Dols & Russell, 2003) is a relatively long-lasting diffuse affective state that is not necessarily attributable to a specific trigger. We did not expect any mood effects as a result of our specific conflict situation but assessed mood to be sure that participants in the different conditions entered the workplace conflict situation in a similar general mood state. We measured valence and arousal of the affective response (short-term affective responses that are supposed to be elicited by a trigger) and expected more negative affect after participants had been interrupted in the workplace conflict situation compared to before being interrupted.

## METHOD

### PARTICIPANTS AND DESIGN.

Seventy-five undergraduate students from the Autonoma University of Madrid, 49 female (65.3%) with a mean age of 19.65 (*SD* = 2.44) participated in a 2 (pre/post) x 2 (male/female) design. The dependent variables considered were mood and valence of affective responses. All participants got one hour course credit in return.

### STIMULI AND PROCEDURE.

Participants arrived in groups of 7 to 8 people. They were told by a female experimenter that the study would be conducted in groups where the individual and group score were equally important. The experimenter also explained to the participants that they would have to take seats in individual cubicles each equipped with a desktop computer. These computers were connected with each other, and that is why participants had to start together in order to synchronize working on the assigned task. Once seated, participants were asked to follow the instructions appearing on the computer screens. The first information presented on the computer screen explained that the study was on the interrelation between individual and group score. Second, all participants were requested to answer demographic questions as well as the Self-Assessment Manikin rating procedure (SAM; Bradley & Lang, 1994), and the Positive and Negative Affect Schedule (PANAS; Watson, Clark & Tellegen, 1988). The SAM is a non-verbal pictorial assessment technique that directly measures the pleasure, arousal, and dominance associated with a person's affective responses to a wide variety of stimuli. The SAM rating procedure consisted of a 5-point picture scales, one for each of the three judgments (lower scores in pleasure and arousal correspond to more pleasure and arousal, whereas lower scores in dominance correspond to less dominance). The PANAS is a twenty items scale with two subscales, one for positive mood and one for negative mood. Each item

was rated on a 5-point scale ranging from 1 (*very slightly or not at all)* to 5 (*extremely)* to indicate the extent to which the respondent has felt this way in a specified time frame.

Next, all participants read the following instructions: "You are going to watch a movie about stress. Thereafter, you will take a recall test on the content of the movie. 50% of your recall score will be based on your individual score and 50% on the average score of your group. Some of you will be allowed to ask questions to the other members of the group during the movie. Asking as well as answering questions will have to go on while the presentation of the movie continues in the background." It was also explained that deciding to answer questions raised by other members of the group would hinder watching the movie. Also, it was said that "each of you is allowed to ask one question at a time; the same holds for giving answers. The program will randomly select who of you will be allowed to ask questions and who of you may answer." A few seconds later all participants read: "In your case, you are allowed to answer questions," so they were informed that they needed to accomplish two goals: (1) to get a high individual score, and (2) to help their colleagues.

Thereafter, participants watched a fragment of the movie *Killer Stress* by Robert Sapolsky (2008), a documental movie about the research on stress Robert Sapolsky conducted. After approximately two minutes, the movie disappeared from the screen and a messenger window showed up saying "You've got a message; do you want to answer?" and the participants could click "yes" or "no." By clicking "yes," the question from a supposed member of the group appeared and a space was provided to give an answer. After that, as well as after clicking "no," participants had to answer the SAM scale in order to assess participant's affective response to the experienced interruption, before they finally could resume watching the movie. In total, there were four interruptions from supposed group members; the participants never knew which member of the group was asking for help. Once the movie ended, participants completed control questions: "Did you close your eyes while

the movie was presented?", and "Had you seen this movie previously?" both with "Yes" or "No" answers. After completing these questions, participants again had to fill out the PANAS (Watson et al., 1988). Finally, participants completed a recall test with questions about the specific contents of the presented movie (e.g., "What is Robert Sapolsky's professional specialty?"; "What kind of primate experiments does Robert Sapolsky conduct?"). Participants were then debriefed and thanked; they received course credit in return.

## RESULTS AND DISCUSSION

### AFFECTIVE RESPONSES.

In line with our expectations, we found no *mood* differences between pre- and post-measures (pre-PANAS: $M = 2.41$, $SD = 1.02$; post-PANAS: $M = 2.55$, $SD = 1.05$; $t\ (74) = 1.21$, *ns*). On the SAM pleasure scale, participants reported experiencing lower pleasure in the post-interruption-SAM measure (reversed coded; $M = 2.40$, $SD = .61$) compared to the pre-interruption-SAM measure (reverse coded; $M = 2.21$, $SD = .79$), $t\ (74) = 2.67$, $p < .01$). Apparently, the interruption made participants feel less pleasant. With respect to the SAM measures of arousal and dominance no significant differences were found between pre- and post-interruption assessments (all *ps* > .23).

### GENDER DIFFERENCES.

We conducted an ANCOVA with gender as the covariate to test for potential gender differences. The covariate was not significant ($F(1, 73) = 1.25$, *ns*); and participants significantly felt more unpleasant ($F(1, 73) = 5.88$, $p < .03$, partial $\eta^2 = .08$) after the tasks even when gender was controlled for.

## STUDY 2: EFFECTS OF DEALING WITH WORKPLACE CONFLICTS BY DIFFERENT SELF-REGULATION STRATEGIES

As workplace conflicts are cognitively demanding, self-regulation strategies are needed that can be used efficiently (i.e., do not need much cognitive resources). This pertains to the initiation of the strategy as well its execution. Action initiation by implementation intentions is known to be fast and efficient (effortless), as the specified response (then-part) is performed quickly once the critical situation (if-part) is encountered. This is true even when cognitive resources are limited (e.g., in a dual-task performance situation; Brandstätter et al., 2001). Therefore, we expected that using implementation intentions should work better when it comes to dealing with workplace conflicts than using traditional reappraisal and suppression strategies. More specifically, we expected better memory performance (in-role) and more helping behavior (extra-role performance) in participants using implementation intentions as compared to participants using emotion reappraisal and suppression strategies.

### METHOD

#### PARTICIPANTS AND DESIGN.

Seventy-six undergraduate students from Autonoma University of Madrid (52 female) participated in return for one hour of course credit; the mean age was 21.98 (*SD* = 3.69). Participants were randomly assigned to one of four conditions: control, suppression, reappraisal, and implementation intention.

#### STIMULI AND PROCEDURE.

The procedure was mostly the same as in the Study 1 (see above). In addition, after participants had been informed of the two task goals they had to accomplish, participants in

the three intervention conditions were given different instructions on how to deal with the conflict.. Participants in the reappraisal and suppression conditions followed instructions taken from Gross and colleagues (i.e., Butler et al., 2003; Gross & John, 2003). Participants in the suppression condition were first given a definition of the strategy using an example, and then they were asked to instruct themselves: "*I will not express my emotions so that I stay calm and concentrated.*" As in the suppression condition, participants in the reappraisal condition were first given a definition of the strategy using an example, and then they were given the following instruction: "*I will try to think in a way so that I stay calm and concentrated.*" Participants in the implementation intention condition were given the instruction "*If a participant interrupts me, then I will stay calm and concentrated*." Participants in the control condition received no further instructions. As a first manipulation check, on the next screen participants were asked to write down the instructions they were given prior to watching the movie.

Thereafter, participants watched a fragment of the movie *Killer Stress* by Robert Sapolsky (2008), with four interruptions by presumed other members of the group, just as in the Pilot Study. They again answered the SAM scale after each interruption. Once the movie had ended, participants completed the same control questions and the PANAS questionnaire as used in the Pilot Study.

### QUESTIONNAIRES.

After watching the movie, a transition screen appeared and participants answered questions related to task goal commitment ("To what extent did you feel committed to the task goals?") and effort to control negative feelings ("To what extent did you try to control your emotions?"). We also assessed the perceived difficulty of staying calm and concentrated ("How difficult was it to stay calm and concentrated?"). After that, participants answered a

short version of the Perceived Stress Scale (PSS; Cohen, Kamarck, and Mermelstein 1983; Remor & Carrobles, 2001) adjusted to the workplace conflict situation. The scale includes questions intended to evaluate the current level of stress experienced by the participant. Items evaluate the degree to which participants find the situation as uncontrollable, and overloaded. These aspects have repeatedly been confirmed as central components of the experience of stress (Remor, 2006). The questions asked to the participants were: 1)"Have you been upset because of the interruptions?"; 2)"Have you felt that you were unable to control the situation?"; 3)"Have you felt nervous and stressed?"; 4)"Have you felt confident about your ability to handle the situation?" ; 5)"Have you felt that things were going your way?"; 6) "Have you found that you could not cope with all the things that you had to do?"; 7) "Have you been able to control irritation?"; 8)"Have you felt that you were on top of things?"; 9)"Have you been angered because the situation was outside of your control?"; and 10) "Have you felt difficulties were piling up so high that you could not overcome them?" . Participants answered the questions in a likert scale ranging from 0 (none) to 4 (very much). It can be noticed that questions 4, 5 and 8 are related to positive feeling of control (PSS control) of the situation (items were reversed to calculate the PSS global score). Items 1, 3, and 7 regard negative emotions (PSS emotion). Finally, items 2, 10, 9, and 6 are related to the feeling of being overloaded (PSS overloaded). After the PSS, participants were asked about their emotional perspective taking regarding the other participants with a 7-point Likert scale ranging from 1 (very bad) to 7 (very good) ("With respect to the answers you gave to the questions you received, how do you think the help seekers were feeling?"). Finally, in order to control possible friendship or other relationship among participants, they had to answer the following question as well: "To what extent do you know your colleagues?" with marking a 7-point scale reaching from 1 (not at all) to 7 (very).

### DEPENDENT VARIABLES: MEMORY PERFORMANCE (IN-ROLE PERFORMANCE) AND HELPING BEHAVIOR (EXTRA-ROLE PERFORMANCE).

In order to assess actual performance on both goals, we proceeded as follows: For the recall test we asked participants to answer 10 items (e.g., "What is Robert Sapolsky's professional specialty?"; "What kind of primate experiments does Robert Sapolsky conduct?"). For the helping behavior, the number of answers given to the help seekers' questions was saved by the computer program. Finally, all participants were debriefed, thanked, and given credit for participation.

## RESULTS AND DISCUSSION

### MANIPULATION CHECKS.

We checked on participants' processing of instructions, affective responses, commitment to task goals, effort to control negative feelings, perceived difficulty of staying calm and concentrated, and perspective taking.

### INSTRUCTIONS PROCESSING.

We tested whether participants had processed the instructions correctly. For this purpose, participants had to write down the instructions they were given prior to watching the movie. Only the participants who correctly described the instructions were included in the analysis. We were especially careful in selecting only participants who had described the instructions with complete accuracy; sixty-one of the seventy-six original participants did so. Thus, for the statistical analyses described below the number of participants in the control, reappraisal, suppression, and implementation intention conditions was 17, 15, 15, and 14, respectively.

### AFFECTIVE RESPONSE.

To check on whether there were *general mood* (PANAS; Watson et al., 1988) differences between conditions, we entered participants' PANAS scores as the dependent variable into a repeated measures ANOVA. We found no significant main effect for time (Pillai's trace $F$ (1, 57) = .251, *ns*) and no significant interaction effect of time and condition (Pillai's trace $F$ (3, 57) = 1.997, *ns*). As we expected no mood differences were found as a function of condition.

A repeated measures ANOVA was also computed for the *SAM scale* related to pleasantness, using the first assessment as the pre-measure and the averaged 4 subsequent assessments as the post-measure. We found a significant main effect for time (Pillai's trace $F$ (1, 57) = 7.604, $p$ = .008), and no significant interaction effect of time x condition (Pillai's trace $F$ (3, 57) = 1.165, *ns*). The average of the post-measure SAM valence scores was (reverse coded) $M$ = 2.35, $SD$ = .52, as compared to the pre-measure score of $M$ = 2.16, $SD$ = .66. Thus, in all conditions, participants felt less pleasant after the interruptions. Regarding arousal, we found a significant main effect for time (Pillai's trace $F$ (1, 57) = 5.239, $p$ = .026), and no significant interaction effect of time x condition (Pillai's trace $F$ (3, 57) = .320, *ns*). Regarding dominance, no significant effects were found for time ($F$ (1, 57) < .016) and time x condition ($F$ (3, 57) < 1.962)

### COMMITMENT TO THE TASK GOALS.

Participants in the implementation intention ($M$ = 6.00, $SD$ = 1.18), reappraisal ($M$ =5.13, $SD$ = 1.55), suppression ($M$ = 5.07, $SD$ = 1.79), and control conditions ($M$ = 5.88, $SD$ = 1.11) did not differ with respect to how committed they felt to the self-regulation goals, $F$(3, 57) = 1.76, *ns*. In addition, the planned contrast of the implementation intention condition compared to all of the other conditions was not significant either.

### EFFORT TO CONTROL NEGATIVE FEELINGS.

No differences were found regarding how much participants tried to control their negative feelings, $F(3, 57) = .67$, *ns* (implementation intention: $M = 4.00$, $SD = 1.71$, reappraisal: $M = 4.13$, $SD = 1.69$, suppression: $M = 4.60$, $SD = 1.50$, and control: $M = 3.76$, $SD = 1.86$). A planned contrast of the implementation intention condition compared to all of the other conditions was not significant either.

### PERCEIVED DIFFICULTY OF STAYING CALM AND CONCENTRATED.

Similarly, no differences between conditions were found regarding the perceived difficulty of staying calm and concentrated, $F(3, 57) = .96$, *ns* (Implementation intention: $M = 2.64$, $SD = 1.45$, Reappraisal: $M = 2.80$, $SD = 1.47$, Suppression: $M = 2.60$, $SD = 1.60$, and control: $M = 3.41$, $SD = 1.62$). Planned contrast comparison of implementation intentions condition compared to the rest of conditions was conducted as well, and it was not significant either.

### PERCEIVED STRESS SCALE.

We conducted omnibus ANOVAs to test whether perceived stress was different among conditions as well as planned contrast to conduct further analyses. Besides the global score of PSS, we differentiated the three aspects above mentioned: feeling of control, emotions felt, and being overloaded. Results from the omnibus ANOVA revealed no significant differences regarding global measure of perceived stress ($F$ (3, 57) =1.244, *ns*). However, specific planned contrasts comparing implementation condition with the other conditions revealed almost significant differences between implementation intentions and the other conditions regarding the global measure of PSS ($p$ =.067). In addition, we found significant main effects regarding the aspect feeling of control ($F(3,57) = 4.076$, $p$ =.011). Even more, specific planned contrast comparing implementation condition with all the rest shows higher significant effects ($p$ =.002). No significant results were found for emotions felt

and being overloaded. Apparently, participants in implementation condition realized they were more in control once they look back at their experience regarding the workplace conflict situation.

### PERSPECTIVE TAKING.

Furthermore, we wanted to assess participants' perspective taking with respect to the help seekers' feelings. Data showed significant differences among the four conditions, $F(3, 57) = 3.11$, $p = .033$, partial $\eta^2 = .14$. The planned contrasts of the implementation intention condition compared to the rest of the conditions was significant ($p = .023$). Participants in the implementation intention condition rated these feelings as more positive, $M = 5.43$, $SD = 1.02$, than the other conditions (control $M = 5.00$, $SD = 1.06$; suppression $M = 4.87$, $SD = .915$; Reappraisal $M = 4.33$, $SD = .90$). Thus, participants using implementation intentions thought that their help giving made the help seekers feel better.

### KNOWLEDGE OF COLLEAGUES.

No differences among condition were found regarding the knowledge of colleagues that were participating in the experiment. Specific planned comparison wasn't significant either.

## DEPENDENT VARIABLES: MEMORY PERFORMANCE (IN-ROLE PERFORMANCE) AND HELPING BEHAVIOR (EXTRA-ROLE PERFORMANCE).

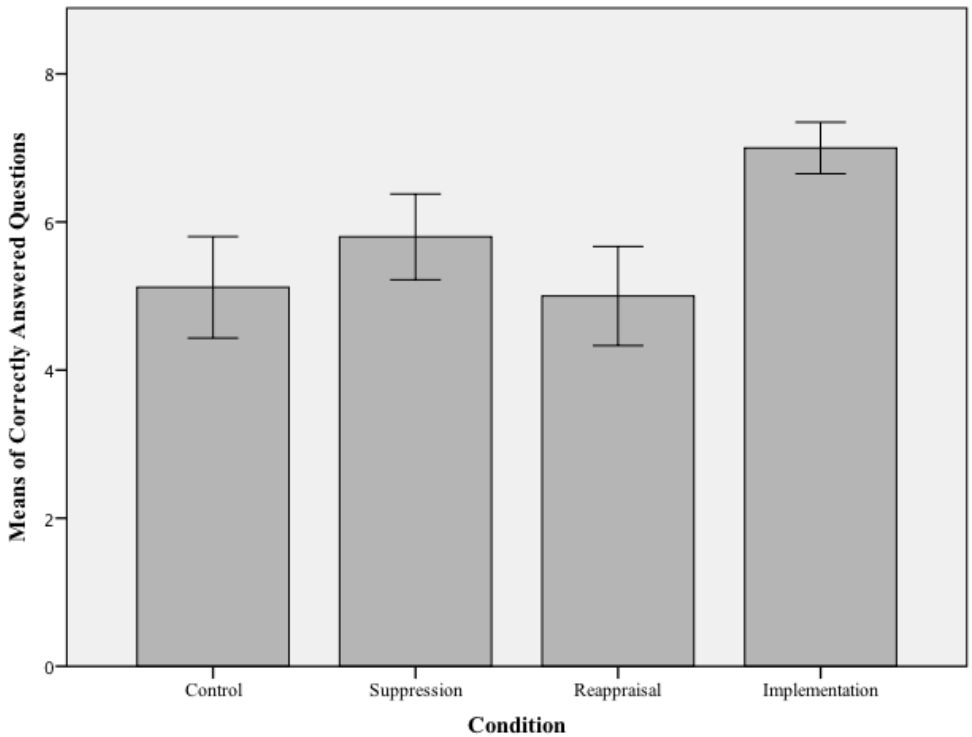
The main dependent measures were the number of correct answers participants recalled on the memory test (see Figure 4) and the participants' helping behavior.

### MEMORY PERFORMANCE.

A one-way ANOVA on the correct answers in the recall test indicated a marginally significant variation among the four conditions, $F(3, 57) = 2.23$, $p < .09$. Conducting an omnibus ANOVA in this case (expecting three conditions to be equal and only one to be

different) is not likely to detect the expected specific pattern of results (Abdi & Williams, 2010). Therefore, we conducted a planned contrast comparing the implementation intention condition with all the rest; the conditions were coded with the following contrast coefficients: control (-1), suppression (-1), reappraisal (-1), and implementation intention (+3). This method results in more precise conclusions regarding the differential effect of the implementation intention condition compared to the other conditions (Abdi & Williams, 2010). The analysis revealed a significant effect, $p < .02$. Detailed individual planned comparisons among the groups further showed that participants in the implementation intention condition ($M = 7.00$, $SD = 1.30$) performed better than participants in the reappraisal condition ($M = 5.00$, $SD = 2.59$), $t(27) = 2.60$, $p < .02$, as well as in the control condition ($M = 5.12$, $SD = 2.83$), $t(29) = 2.30$, $p < .03$, and marginally significantly better than in the suppression condition ($M = 5.80$, $SD = 2.24$), $t(27) = 1.75$, $p < .09$. No differences were found between the reappraisal and suppression conditions, $t < 1$.

**Figure 4 Means of the final score in the memory test by condition (Study 2).**



### HELPING BEHAVIOR.

Regarding the helping behavior performance, the omnibus ANOVA as well as the planned contrast showed no significant differences. All of the four groups responded on average to 3.5 out of 4 possible helping requests.

In summary, participants' memory performance in the implementation intention condition was higher than in the other conditions, indicating that straightforward implementation intentions to stay calm and concentrated were more effective in dealing with the workplace conflict than the two emotion-regulation strategies; the latter two conditions (suppression and reappraisal) showed a memory performance that was as low as that observed in the control condition. Importantly, this boost in in-role performance was not due to less helping behavior; this finding indicates that implementation intention participants managed to achieve a high performance on the focal task (in-role performance) without having to cut down their performance on the extra-role task (i.e., being responsive to helping requests).

Interestingly, while performing better on the focal task, the implementation intention participants did not show less negative affect compared to the other conditions. Thus, implementation intention participants were dealing with the workplace conflict better, despite reporting similar negative affect as participants of the other conditions. We will return to this issue in the general discussion.

In the second experiment, we further investigated the consequences of the self-regulation of a workplace conflict on extra-role performance (helping behavior) by increasing the number of presented opportunities for helping. This way we tried to reduce the potential ceiling effect in Study 2 (i.e., we may not have found an effect on helping because participants of all conditions showed a very high amount of helping behavior in general). Moreover, we tested additional strategies to deal with the workplace conflict (see below).

# STUDY 3: FRAMING SUPPRESSION AND REAPPRAISAL STRATEGIES IN AN IF-THEN FORMAT

In Study 3 we wanted to complement the findings from Study 2 by adding two more conditions. With these new conditions we tested whether framing the reappraisal and suppression strategies in terms of if-then plans might increase their effectiveness. Even though if-then planning should be helpful, one has to keep in mind that the complexity of the reappraisal strategy and the negation implied by the suppression strategy might render respective if-then planning less effective than the straightforward implementation intention, as complex and negation implementation intentions may not achieve the automaticity of action control that is characteristic of straightforward implementation intentions.

Thus, in this second experiment, we compared the traditional emotion regulation strategies (reappraisal and suppression) with the straightforward implementation intention used in Study 2 (i.e., replication of Study 2). In addition, we tested the limits of reframing a suppression strategy and reappraisal strategy in terms of if-then plans. Also, in order to explore a potential ceiling effect in the helping behavior performance observed in Study 2, we increased the number of helping opportunities from 4 to 6 in Study 3.

## METHOD

### PARTICIPANTS AND DESIGN.

One hundred and twenty-three undergraduate students participated in the experiment (69 female; mean age was 22.00, *SD* = 4.36) in return for one hour of course credit. Participants were randomly assigned to one of six conditions: control, suppression, reappraisal, suppression implementation intention, and reappraisal implementation intention,

and straightforward implementation intention. Dependent variables were the participants' recall performance (in-role task) and the amount of helping behavior (extra-role performance).

### STIMULI AND PROCEDURE.

The procedure was the same as in Study 2. In addition, participants in the added suppression implementation intention condition were given the plan *"If a participant interrupts me, then I will not express my emotions so that I stay calm and concentrated*." Participants in the added reappraisal implementation intention condition were given the plan "*If a participant interrupts me, then I will try to think in a way so that I stay calm and concentrated*." Similar to Study 2, prior to watching the movie all participants were asked to write down the instructions they were given. Thereafter, they watched the documentary *Killer Stress* by Robert Sapolsky, and answered (or rejected) questions asked by the supposed other members of the group. Participants experienced a total of six requests for help, each followed by the SAM scale assessment. Finally, the same questionnaires as in Study 2 were administered, which contained questions on participants' commitment to meet the task goals, attempts to control emotions, perceived task difficulty, perceived stress, perspective taking, as well as their knowledge of the other participants. Finally, memory and helping behavior performance was assessed; thereafter, participants were debriefed, thanked, and given course credit.

## RESULTS AND DISCUSSION

### MANIPULATION CHECKS.

#### INSTRUCTIONS PROCESSING.

As in Study 2, we asked participants to describe the instructions they were given prior to the movie. Again, only the participants who correctly described the instructions were included in the analysis. We were especially careful in selecting only those participants who

described with total accuracy the instructions. One hundred participants correctly described the instructions (23 participants had to be excluded). Thus, for the analysis the number of participants in the control, reappraisal, suppression, reappraisal implementation intention, suppression implementation intention and implementation intention conditions was 16, 16, 17, 16, 17, and 17, respectively.

### AFFECTIVE RESPONSES.

To check on whether there were *general mood* (PANAS; Watson et al., 1988) differences between conditions, we entered participants' PANAS scores as the dependent variable into a repeated measures ANOVA. As in Study 2, we observed no mood differences as a function of time ($F$ (1, 94) = 2.866, *ns*) or time x condition ($F$ (5, 94) = .538, *ns*).

As in Study 2, a repeated measures ANOVA was computed for the *SAM scale* related to pleasantness, using the first assessment as the pre-measure and the averaged 6 subsequent assessments as the post-measure. We found a significant main effect for time (Pillai's trace $F$ (1, 94) = 19.749, $p$ = .000), and no significant interaction effect of time x condition (Pillai's trace $F$ (5, 94) = 1.422, *ns*). The average of the post-measure SAM valence scores was (reverse coded) $M$ = 2.50, $SD$ = .51, as compared to the pre-measure score of $M$ = 2.26, $SD$ = .69. Thus, in all conditions, participants felt less pleasant after the interruptions compared to the pre-measure.

### COMMITMENT TO TASK GOALS.

As in Study 2, no differences were found regarding the commitment to the self-regulation of goals between conditions: implementation intention ($M$ = 6.18, $SD$ = 1.13), reappraisal implementation intention ($M$ =4.75, $SD$ = 1.65), suppression implementation intention($M$ = 5.24, $SD$ = 1.72), reappraisal ($M$ =5.31, $SD$ = 1.30), suppression ($M$ = 4.76, $SD$ = 1.82) and control conditions ($M$ = 5.35, $SD$ = 1.22), did not differ with respect to how

committed they felt to the task goals, $F(5, 94) = 1.03$, *ns*. In addition, the planned contrast of the straightforward implementation intention condition compared to all of the other conditions was not significant either .

### EFFORT TO CONTROL NEGATIVE FEELINGS.

No differences were found regarding how much participants tried to control their negative feelings, $F < 1$ (implementation intention: $M = 4.35$, $SD = 1.77$, reappraisal implementation: $M = 3.75$, $SD = 1.62$, suppression implementation: $M = 4.47$, $SD = 1.77$, reappraisal: $M = 4.44$, $SD = 1.50$, suppression: $M = 4.29$, $SD = 1.97$, control: $M = 4.06$, $SD = 1.68$). Similarly, a planned contrast comparison of the straightforward implementation intention condition compared to all of the other conditions was not significant either.

### PERCEIVED DIFFICULTY OF STAYING CALM AND CONCENTRATED.

No differences were found in the perceived difficulty, $F < 1$ (Implementation intention: $M = 2.12$, $SD = 1.27$, Reappraisal implementation: $M = 2.75$, $SD = 1.44$, Suppression implementation: $M = 2.76$, $SD = 1.75$, Reappraisal: $M = 2.50$, $SD = 1.63$, Suppression: $M = 3.06$, $SD = 1.64$, Control: $M = 3.06$, $SD = 1.44$). A planned contrast of the straightforward implementation intention condition compared to all of the other conditions was conducted as well, and it was not significant either .

### PERCEIVED STRESS.

Omnibus ANOVA revealed no significant differences for the global measure of perceived stress. However, specific planned contrast comparing straightforward implementation condition with the all of the other condition showed significant effects ($p = .028$). Regarding the different aspects, similarly to Study 2, we found significant main effects for control ($p=.003$) and no significant main effects for emotions felt and being overloaded. Even more, specific planned contrast regarding the control aspect showed higher

significant effects ($p$ =.000) when comparing implementation condition with all the rest. Again, participants in implementation condition realized they were more in control once they look back at their experience regarding the workplace conflict situation.

### PERSPECTIVE TAKING.

We also assessed how participants thought the help seekers were feeling and found significant differences among the six conditions, $F(5, 94) = 2.47$, $p < .04$, partial $\eta^2 = .12$. The planned contrast of the implementation intentions condition compared to the other conditions was significant ($p = .046$). Participants in the control condition ($M = 4.47$, $SD = .94$) rated these feelings as more negative compared to participants in the implementation intention condition ($M = 5.53$, $SD = .94$) , $t$ (32) = -3.27, $p < .01$, participants in the reappraisal condition ($M = 5.19$, $SD = .83$), $t$ (31) = -2.31, $p < .03$, and participants in the suppression implementation intention condition ($M = 5.35$, $SD = .99$), $t$ (32) = 2.65, $p < .02$. No other contrasts were significant, $t < 1.38$, *ns*.

### KNOWLEDGE OF COLLEAGUES.

We found differences among condition regarding the knowledge of colleagues that were participating in the experiment ($F(5, 94) = 3.824$, $p = .003$. Specific planned comparison for straightforward implementation intentions was less significant ($p = .036$). Being so, it is important to introduce knowledge of colleagues as a covariable in the analysis of helping behavior.

## DEPENDENT VARIABLES: MEMORY PERFORMANCE (IN-ROLE) AND HELPING BEHAVIOR (EXTRA-ROLE).

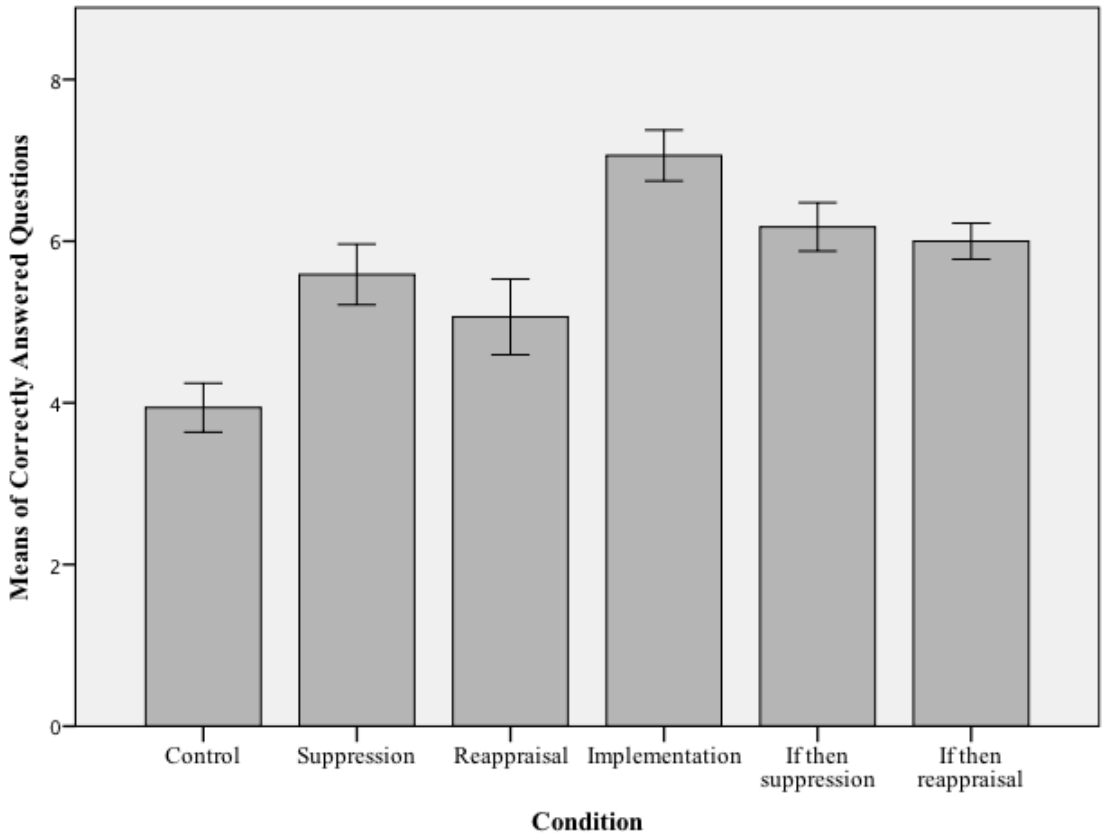
The main dependent measures were the number of correct answers participants recalled on the memory test (see Figure 5) and the participants' helping behavior (see Figure 6).

## MEMORY PERFORMANCE.

A one-way ANOVA on the correct answers in the recall test indicated a significant difference among the six conditions, $F$ (5, 94) = 10.02, $p < .001$, partial $\eta^2 = .35$. Comparing the straightforward implementation intention condition to the other conditions [contrast coefficients: control (-1), suppression (-1), reappraisal (-1), suppression implementation intention (-1), reappraisal implementation intention (-1), and implementation intention (+5)] resulted in a highly significant effect, $F$ (1, 94) = 21.492, $p < .001$. Detailed individual planned comparisons among the groups indicated that participants in the implementation intention condition ($M$ = 7.06, $SD$ = 1.29) performed better than participants in the reappraisal implementation intention condition ($M$ = 6.00, $SD$ = .89), $t$(31) = 2.71, $p < .02$, the suppression implementation intention condition ($M$ = 6.18, $SD$ = 1.24), $t$(32) = 2.04, $p < .05$, the reappraisal condition ($M$ = 5.06, $SD$ = 1.88), $t$(31) = 3.57, $p < .01$, the suppression condition ($M$ = 5.59, $SD$ = 1.54), $t$ (32) = 3.01, $p < .01$, and the control condition ($M$ = 3.94, $SD$ = 1.25), $t$(32) = 7.14, $p < .01$.

Moreover, we wondered whether framing suppression and reappraisal instructions as if-then plans would enhance the impact of these self-regulation strategies. Accordingly we computed a 2 (type of strategy: suppression vs. reappraisal) x 2 (if-then format: yes vs. no) between-participant ANOVA. We observed a main effect for the if-then structure ($F$(1,62) = 4.664, $p$ = .035) that was not qualified by an interaction with the type of strategy factor ($F$(1,62) = .244, *ns*); no significant main effect of type of strategy was observed either ($F$(1,62) = .988, *ns*). Suppression ($M$ = 6.18, $SD$ = 1.24) and reappraisal ($M$ = 6.00, $SD$ = .89) strategies framed in an if-then format led to better performance as compared to delivering these strategies in the classic format (reappraisal condition $M$ = 5.06, $SD$ = 1.88; suppression condition ($M$ = 5.59, $SD$ = 1.54).

**FIGURE 5: Means of the final score in the memory test by condition (Study 3).**

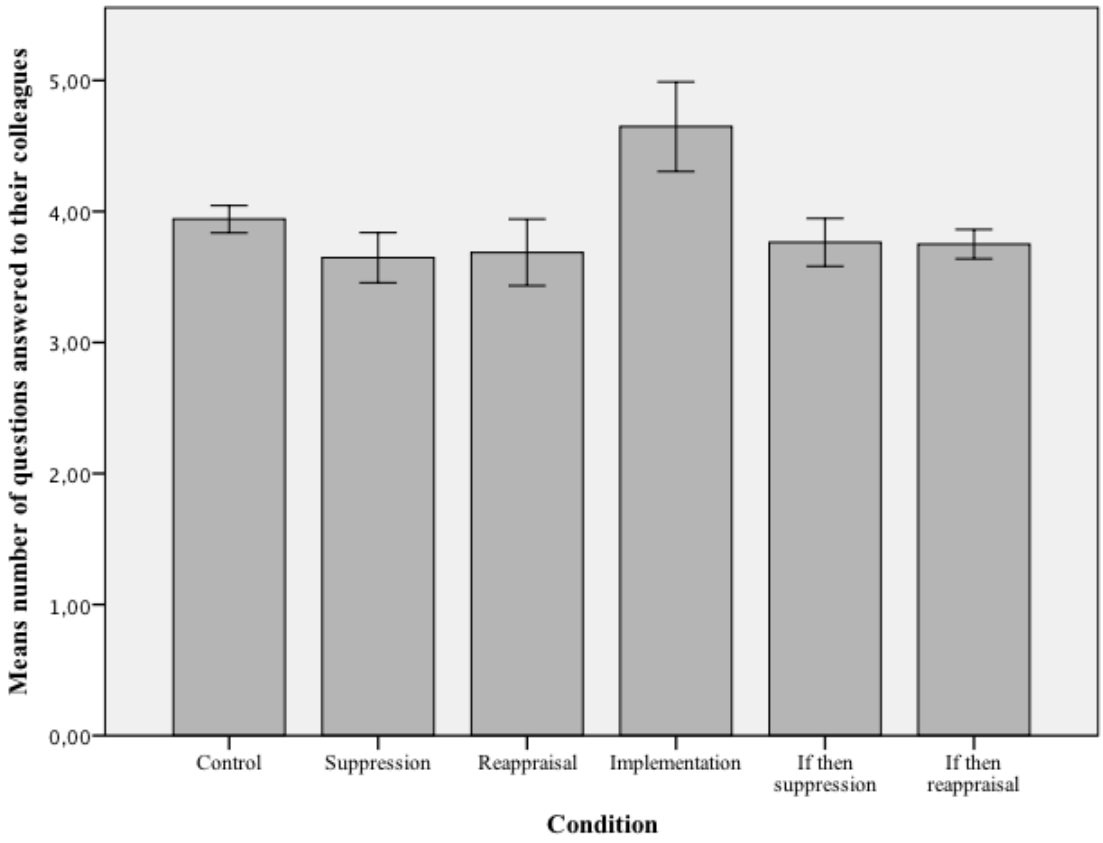



## HELPING BEHAVIOR.

Regarding the helping behavior, significant differences among the groups ($F$ (5, 94) = 3.12, $p$ = .012, partial $\eta^2$ = .14) were found as well. The planned contrast of implementation intention condition compared to the other conditions was highly significant, $p$ < .01. Detailed individual planned comparisons among the groups indicated that participants in the implementation intention condition helped more often ($M$ = 4.65, $SD$ = 1.41) than participants in the reappraisal implementation intention condition ($M$ = 3.75, $SD$ = .45), $t$(31) = 2.43, $p$ < .03, the suppression implementation intention condition ($M$ = 3.76, $SD$= .75), $t$(32) = 2.27, $p$ < .04, the reappraisal condition ($M$ = 3.69, $SD$= 1.01), $t$(31) = 2.23, $p$ < .04, and the suppression condition ($M$ = 3.65, $SD$ = .79), $t$(32) = 2.55, $p$ < .02. No other differences were observed, $t$ < 1 (see Figure 3). When we also conducted a 2 (type of strategy: suppression vs.

reappraisal) x 2 (if-then format: yes vs. no) between-participant ANOVA as was done on memory performance, no main or interaction effects turned out to be significant.

Figure 6.- Helping **behavior: means of the number of questions answered by condition (Study 3).**




In this second experiment, we replicated that the straightforward implementation intention to stay calm and concentrated is more effective in dealing with the workplace conflict compared to the other forms of self-regulation. This is indicated by better memory task (in-role) performance, and in this second experiment even by more helping behavior (extra-role performance) compared to the other conditions. Additionally, while not achieving the performance level of participants in the straightforward implementation intention condition in the memory task, participants in the suppression and reappraisal implementation intention condition still performed better compared to the same strategies not formulated in an if-then format. But even though the if-then format managed to enhance the effect of the suppression

and reappraisal strategies in the memory task, no such performance facilitating effect was observed for the helping behavior. I appears then, that the straightforward then-part (i.e., "*..., then I stay calm and concentrated*") is superior to the more complex then-parts (i.e.,"…, *then I will not express my emotions so that I stay calm and concentrated."* and *"..., then I will try to think in a way so that I stay calm and concentrated.*"). Possibly, filling then-parts of implementation intentions with too complex responses or responses that specify a negation undermine the automaticity associated with implementation intentions.

Again, although participants in the straightforward implementation intention condition performed better in the in-role and extra-role task, the affective valence measurement did not indicate differences between the conditions. We will elaborate on this finding in the general discussion. Finally, regarding perspective taking with the help seeker, as compared to control participants, participants with the straightforward and suppression implementation intention and the traditional reappraisal strategy thought that their answers made their presumed colleagues feel better. This finding replicates the positive effect of forming implementation intentions on perspective taking as observed in Study 2 – at least for the straightforward and the suppression implementation intentions (for the reappraisal implementation intention no perspective taking improvement was observed).

## GENERAL DISCUSSION

Dealing with workplace conflicts is affectively and cognitively demanding. However, as shown in the present experiments, self-regulation strategies exist that can deal with such conflicts constructively. In both experiments, straightforward implementation intentions to stay calm and concentrated were more effective in dealing with a workplace conflict compared to using no strategies or traditional emotion-regulation strategies such as reappraisal and suppression. We assessed the effectiveness of self-regulation strategies terms of performing well on the focal task (in-role) as well as the conflicting task (extra-role). In Study 2, the beneficial effects of the straightforward if-then strategy were observed on the focal task without compromising the performance on the conflicting task. In Study 3, we even found improved performance on both tasks. When we worded the suppression and reappraisal strategies in terms of if-then plans, we found positive effects on memory performance that were not as pronounced as the performance enhancing effects of straightforward implementation intentions. Moreover, suppression and reappraisal implementation intentions did not show any improvement in helping behavior as was found for straightforward implementation intentions (Study 3). With respect to the negative affect reported by the participants, we did not find any positive effects (i.e., reduction of negative affect) for any of the strategies. Why then did the participants in the straightforward implementation intention condition benefit so much from their if-then strategy even though no reduction of negative affect was observed? Apparently, these if-then planners managed to act calm and concentrated and thus performed well, while they still experienced as much negative affect as participants in the other conditions. Recently, a similar finding is reported by Stern and West (2014) when studying the role of implementation intentions in holding up an interest in sustaining contact during anxiety provoking interracial interactions. These authors report that positive effects of implementation intentions could be achieved by their research participants

without a respective reduction in anxiety. It appears, then, that implementation intentions do not need to reduce negative affect to effectively deal with stressful situations. Linking the critical cue (e.g., interruptions in the present studies) to a desired response (e.g., staying calm and concentrated) suffices. In other words, the plan to respond to a disruptive request with staying calm and concentrated works even though this request elicits negative affect that does stay alive.

Interestingly, the fact that acting without down-regulating negative affect worked better than trying to down-regulate them, is in line with recent applied research at the workplace (v.g., Bond, Flaxman & Bunce, 2008; Bond & Bunce, 2003) that suggested that acting focusing our attention on the emotional control prevents goal attainment. Their research advocates for focusing our attention to the present moment and for behaving in the pursuit of goals and values instead of focusing our attention to our internal events (e.g., emotions, thoughts, physiological sensations, etc.). In addition, this beneficial way of behaving is suggested as a primary determinant of mental health for acceptance- and mindfulness based therapies such as Acceptance and Commitment Therapy (Hayes, Stroshal, & Wilson, 1999), or Mindfulness-Based Cognitive Therapy (Segal et al., 2002). Therefore, this kind of self-regulation via implementation intentions might enhance well-being as well.

This finding is in line with the notion that action control by implementation intentions is efficient (i.e., runs of effectively even when it has to be performed in demanding performance situations; e.g., Brandstätter et al., 2001). Moreover, our observation that if-then planners turn out to be better perspective takers with respect to the feelings of the persons who ask for help also indicates that acting on the basis of implementation intentions is efficient (i.e., does not require much cognitive capacity). That this effect did not evince in the reappraisal if-then planners suggests that if-then plans that specify complex cognitive

responses in the then-part may not achieve the efficiency of if-then planned action control commonly found.

The effect of depletion of self-regulation resources (DeWall, Baumeister, Gailliot, & Maner, 2008) was apparently mitigated by operating under the guidance of implementation intentions. Trying to deal with negative affect by an implementation intention strategy seems to keep regulatory resources intact and thus, it allows for subsequent helping behavior which is not the case for other emotion-regulation strategies (Cameron & Payne, 2011). More evidence regarding automaticity versus conscious processes is shown by the levels of commitment in the different conditions. Levels of commitment to both task goals (i.e., memorizing and helping) were similar across conditions as revealed by post-experimental data, supporting our assumption that implementation intentions did not produce their effects by induced changes in task goal commitment. These finding are in line with other studies that have not found changes in goal commitment as a consequence of forming implementation intentions as well (e.g., Orbell, Hodgkins, S., & Sheeran, 1997; Sheeran & Orbell, 1999; for a meta-analysis, see Webb & Sheeran, 2008).

Therefore, the present studies provide further evidence in favor of the power of implementation intentions as a self-regulation tool when we have to reach several goals and deal with negative affect at the same time, what it is usually a very common real life scenario. Our results are not only relevant for basic research on implementation intentions and emotion regulation, but also for applied research at the workplace, more over given the naturalistic validity of our experimental design.

## ADDRESSING LIMITATIONS AND FUTURE DIRECTIONS

Despite the relevance of these findings, some limitations must also be pointed out. Our affective measure (but not the dependent variables) as well as other control questions were

based on self-reports which may be biased or not sensitive enough to assess the intended construct fully. Future research could profit from including additional measures, such as psycho-physiological measures for example. In addition, our first study could have included a control condition; however we think that replication of results in all three studies regarding negative affect (as compared to other variables) are good prove of a negative affect elicitation by the workplace conflict.

We should also consider that in our studies participants had conflicting goals (helping others and paying attention to the movie) that could not be integrated. In line with research on self-concordance (e.g., Koestner et al, 2006; Sheldon & Kasser, 1995), one could ask the participants, for example, to what extent striving towards each goal supports or hinders the achievement of the other goal? This may be one reason why implementation intention participants reported the same level of perceived task difficulty as observed for the rest of the experimental conditions. One could also compare a goal integration condition with a goal conflict condition. In doing so, one could study if a difference in the possibility of goal integration (both either only perceived or actual reality) might have an effect on several important outcomes such as performance, helping behavior, and satisfaction with one's actions. Past research has shown, for example, that a lack of personality integration (e.g., motive–goal incongruence) is a negative predictor of wellbeing (Brunstein, Schultheiss, & Grassmann, 1998; Code & Langan-Fox, 2001; Sheldon & Elliot, 1998, 1999). Would this be different depending on the strategies people use to self-regulate goal conflicts? And would these effects be moderated by people's resources and mindsets? Along these lines, a study by Van Dierendonck and colleagues (van Dierendonck, Rodríguez-Carvajal, Moreno-Jiménez & Dijkstra, 2010) showed that even though the situational circumstances are potentially stressful, as when there is no goal integration possible, staying calm can be attained through holding on

to a detached attitude (thus protecting resources), while at the same time working on the basis of an active mindset.

Finally, one might also want to go beyond studying the self-regulation strategies suggested to research participants in the present studies (i.e., staying calm and concentrated, reappraisal, and suppression). Recent research has shown that taking a distant perspective (i.e., a watchtower perspective) also facilitates conflict resolution (i.e., escaping the escalation of commitment to a failing course of action; Wieber, Thürmer, & Gollwitzer, under review). It seems very well possible that adopting a watchtower perspective (Kross & Ayduk, 2011) facilitates a conflict resolution that is as highly effective as the simple if-then plan to stay calm and concentrated; such a watchtower perspective might be particularly helpful when it comes to finding integrative solutions for workplace conflicts, as finding such solutions requires a very open-minded processing of available information.

## CONCLUSION

Research on self-regulation by implementation intentions has so far mostly focused on goal attainment of one single targeted goal, and it was found that implementation intentions considerably enhance the attainment rate of goals from various domains (e.g., academic, health, interpersonal; Gollwitzer & Sheeran, 2006). The present experiments demonstrate that the attainment of goals that are in conflict can also benefit from forming implementation intentions. As such conflicts are typical of goal striving at the workplace and in everyday life, it is comforting to know that a straightforward if-then plan to stay calm and concentrated suffices to promote the attainment of goals that are in conflict.

# CHAPTER 4:
# MINDFULNESS MINDSET IN LAB SETTINGS

Abstract

Last decades, research on mindfulness is exponentially growing. However, there is a need of much more laboratory research and experimental procedure validations. We created a procedure to induce a mindfulness state. In order to validate the procedure, we designed a pre-post study to examine the extent to which the state of mindfulness is actually manipulated by the instructions. Furthermore, we wanted to check if the instructions format might influence mindfulness elicitation. Results from the 2(pre-post) x 4(mindfulness audio/ mindfulness reading/ mindfulness audio+reading/ control) ANOVA showed good prove of inducing mindfulness state through decentering dimension. In addition, there was better engagement with the instructions audio+reading, whereas the worse result was showed by the audio condition. The present validated procedure was revealed as a useful tool for mindfulness experimental research. Therefore, it might simplify the comparison between studies and help to find out the processes that explains mindfulness and its effects.

## STUDY 4: A PROCEDURE VALIDATION TO EXPERIMENTALLY INDUCE MINDFULNESS

Research on mindfulness is entering in a new era and coming into the mainstream (Davidson, 2010; Justo, de la Fuente & Granados, 2011) even at the risk of becoming a fashion (Pérez-Alvarez, 2012). Nowadays, mindfulness is not only a main topic in Positive Psychology but also it has been integrated into many of the so called third wave therapies such as Acceptance and Commitment Therapy (ACT), Functional Analytic Psychotherapy (FAP), and Dialectical Behavioral Therapy (DBT) (Pérez-Alvarez, 2012), and its philosophy and techniques have shown their efficacy in a range of healthy psychological effects (Keng, Smoski, & Robins, 2011). However, there is a need of much more laboratory research. Laboratory studies have the advantage of more easily isolating mindfulness from other elements typically present in clinical intervention packages thus allowing greater control over independent variables and stronger conclusions about causal effects (Keng et al 2011). Besides, within the scarce of experimental studies on mindfulness, we found several limitations on them. First of all, most of the researches included post-experimental manipulation checks on adherence to the training instructions; however they did not explicitly assess the extent to which participants were in a mindfulness state in comparison with their state before the training instructions (i.e., Erisman & Roemer, 2010). In this line, as suggested by Keng and colleagues (2011), it is very important to examine the extent to which a state of mindfulness is actually manipulated by the study instructions. Another important issue regards to different conceptualizations of what mindfulness is, and the variety of instructions to experimentally induce a mindfulness state. In some cases, mindfulness is considered as ‘a state in which individuals continually make novel distinctions about

objects of their attention', and it is induced through active categorization or distinction making (i.e., Djikic, Langer, & Fulton Stapleton, 2008). Whereas in other cases, mindfulness is considered as 'an openhearted, moment-to-moment, nonjudgmental awareness', and it was implemented through some minutes of mindfulness meditation (i.e., Erisman & Roemer, 2010). Also, in ACT studies, for instance, a certain self-distancing or perspective with regard to the self is promoted through mindfulness exercises (Pérez-Álvarez, 2012). Furthermore, the instructions format varies also between studies, sometimes reading, and sometimes just listening to the instructions. In line with Davidson (2010), this variety of experimental procedures and conceptualizations highly likely produces different elicitations.

So, in order to validate a procedure to experimentally induce a mindfulness state, we will try to overcome each of the above limitations. As regards checking the elicitation of a mindfulness state, we designed a pre-post study to examine the extent to which the state of mindfulness is actually manipulated by the study instructions. Firstly, we checked if participants were involved and following the instructions by writing down their experience. We also used the Toronto Mindfulness Scale (TMS) developed by Lau, Bishop, Segal, Buis, Anderson, et al. (2006), since it is a mindfulness state validated measure comprised decentering and curiosity dimensions. A variety of mindfulness measures have been developed recently (v.g., FFMQ developed by Baer, Gregory, Hopkins, Krietemeyer, & Toney, 2006). However, all of these measures were originally designed to assess mindfulness as a trait or dispositional variable, whereas the TMS viewed mindfulness as a state-like quality (Lau et al, 2006). According to the limitation related to the variety of instructions, we wanted to narrow the mindfulness procedure in time and complexity. Thus, mindfulness state could easily be isolated and it could be comparable to other experimental conditions. As we have also pointed out,

the concept of mindfulness in experimental research is not homogeneous. In this research we wanted that our mindfulness elicitation procedure focus on instructions from clinical practices (versus for example the mindfulness interpretation of Djikic et al, 2008). In this sense, we identified decentering component as one of the key element of mindfulness in clinical practice. Decentering is emphasized as an important mechanism of mindfulness-based therapies (Feldman, Greeson, & Senville, 2010), and it appears to be comparable to concepts such as cognitive defusion and self-as-context (Barraca, 2012) both key concepts in therapies such as ACT (Hayes, Strosahl, & Wilson, 2012; Ruiz, Herrera, Luciano, Cangas, & Beltrán, 2013). Thus, we have narrowed our procedure to the mindfulness component of decentering. In this sense, we expected positive results for the dimension of decentering of the TMS. No particular results are expected for the curiosity dimension since the instructions are specifically related to decentering. Furthermore, we wanted to check if the instructions format (audio versus reading) might influence mindfulness elicitation. For that purpose, we create the following experimental procedure to induce mindfulness.

## METHOD

### PARTICIPANTS

Ninety-two undergraduate students, 20 male and 72 female with a mean age of 19.86 (*SD* = 1.97) participated in the current experiment in exchange of one hour course credit. The research adheres to relevant ethical guidelines therefore informed consent was appropriately obtained from all participants.

### MEASURES

The study involved the Toronto Mindfulness Scale (TMS). The TMS consist in a total 13 items for two dimensions: curiosity (6 items) and decentering (7 items). It has also showed good psychometric properties (Lau et al, 2006). Some examples of items are: 'I was curious about what I might learn about myself by taking notice of how I react to certain thoughts, feelings or sensations' (curiosity), or 'I was more invested in just watching my experiences as they arose, than in figuring out what they could mean' (decentering).

## PROCEDURE

The experiment consisted in a 2 (time: pre / post, within-subjects) x 4 (mindfulness condition: audio / reading / audio + reading / control, between-subjects) design. First of all, participants entered the room in groups of 7-8 people. Then, each of them entered into individual cabins containing personal computers and headsets. All participants were told to wear the headset, since randomly some of them would listen to the instructions, and also to follow the instructions appearing on the computer screen. In all conditions, participants first were explained that they were participating in a study on personality and mindsets. Then, they all completed some socio-demographic questions, along with the pre-measure of the TMS. After that, the computer randomly assigned each of them to one of the four conditions: audio, reading, audio + reading or control. Then, participants in audio, reading and audio+reading conditions followed the mindfulness instructions, while participants in control condition followed an explanation of Jacobson brief relaxation instructions (Jacobson, 1938). In the literature, relaxation interventions have been compared to mindfulness interventions both as an active control group to test mindfulness effects (v.g., Sharpe, Perry, Rogers, Refshauge, & Nicholas, 2013; Ainsworth, Eddershaw, Meron, Baldwin & Garner, 2013), and as intervention group to look for differential effects between mindfulness and relaxation

(v.g., Jain, Shapiro, Swanich, Roesch, Mills, Bell & Schwartz, 2007). Participants in mindfulness conditions followed the instructions either listening to it through an audio recording that the computer displayed (audio condition), or reading it on the screen (reading condition), or listening and reading the instructions at the same time (audio+reading condition). These mindfulness instructions were based on the mindfulness exercise called *The Observer* (i.e., Wilson & Luciano, 2002), although we adapted the instructions for our purposes. The mindfulness instructions script was the following: *There are many thinking exercises. For example, seeing oneself in the present moment and being conscious by observing what it is present. Observe and take notice that you perform several roles in your life. It is likely that you are a son/daughter, observe yourself being a son/daughter. Take notice of the things you do, the things you say or think…notice it, and take your time to notice it. It is also likely that you are someone´s friend. Observe yourself as a friend. Notice the things you do, say or think… be aware of your role as a friend, notice it, and take your time to notice it. Notice that it is likely that you behave differently according to the role you are in that moment. And notice that you are observing yourself in every role. This can happen because you are not just the roles, you are something else. You are the one that is aware, the one that can notice; the observer. For instance, observe right now, be aware that you are here in this very moment… be aware of yourself thinking and being here. And notice that that presence, the observer was there when you were a child, when you were an adolescent, when you behave as a son/daughter or friend. And that you as observer will be in the future as well even though everything changes*. There was some seconds between the end of a sentence and the beginning of the next one (appearing on the screen as well as sounding from the audio recording), so the instructions timing allowed participants to take their time to notice it.

After that, the instructions continued on the next screen and all participants had to complete the following: '*From that observing position, from your point of view as observer and being aware, please describe how do you observe: What you are doing right now…; The place where you are…; Your corporal position…; Your breathing…*' After each of the sentences, participants had some space and time to write down their experience as observer regarding each of the sentences. This writing phase is important as an experimental check of the participants being involved in the experiment in the instructed way. After the mindfulness elicitation, participants in all conditions completed the TMS post-measure. Then, participants were thanked and got an hour course credit in return.

## RESULTS

First of all, in order to check the extent to which participants were involved in the experiment in the instructed way we analyzed their qualitative answers. Through inter-rater agreement, two independent raters assessed to what extent each participants followed the mindfulness or control instructions. In the audio condition four participants were deleted (16.66%), in the reading condition one participant was deleted (5.00%), and in the audio+reading condition one participant was deleted (3.84%). No participant was deleted in the control condition. The strength of agreement was considered good (weighted Kappa = 0.778).

Repeated measures ANOVAs from pre- to post-mindfulness elicitation were conducted for the two different dimensions of the TMS, curiosity and decentering. With *time* as within-subject factor and *condition* as between subject factors.

Regarding decentering dimension we found significant main effects for time (Pillai's trace $F$ (1, 82) = 60.059, $p < .000$) and significant effects for the interaction time x

condition (Pillai's trace $F$ (3, 82) = 4.870, $p < .004$). Decentering was significantly higher after the exercise in all three mindfulness conditions ($p < .001$) but not in the control condition ($p = .270$) (see Figure 7). Multiple comparisons (Bonferroni) showed significant differences between control condition and all three mindfulness conditions ($p < .000$), and no differences between any mindfulness conditions. Regarding the dimension of curiosity we found significant main effect for time (Pillai's trace $F$ (1, 82) = 11.680, $p$ =.001). However, no effect was found for the interaction time x condition (Pillai's trace $F$ (3, 82) =.1.386, *ns*). Interestingly means were lower after the procedure in the mindfulness conditions and the control condition (Table 1). In addition, there was better engagement with the mindfulness instructions when they were in audio+reading format at the same time (mean difference: .783), whereas the worse result was showed by the audio condition (mean difference: .474).

Table 1. Means, standard deviations and mean differences for curiosity and decentering measures in each condition.

| | | Dependent variables* | | | | | |
|---|---|---|---|---|---|---|---|
| Condition | | Curiosity1 | Curiosity2 | dif_curiosity | Decentering1 | Decentering2 | dif_decen. |
| Audio | *M* | 3.958 | 3.683 | -.275 | 2.543 | 3.042 | .500 |
| (*N* = 20) | *SD* | .621 | .599 | .536 | .478 | .846 | .668 |
| Audio+Reading | *M* | 4.067 | 3.940 | -.127 | 2.440 | 3.383 | .783 |
| (N= 25) | *SD* | .366 | .716 | .653 | .366 | .708 | .448 |
| Reading | *M* | 4.158 | 3.991 | -.167 | 2.910 | 3.383 | .474 |
| (*N*= 19) | *SD* | .543 | .856 | .628 | .584 | .700 | .508 |
| Control | *M* | 2.561 | 2.019 | -.541 | 1.747 | 1.747 | .1369 |
| (*N*=22) | *SD* | .133 | 1.096 | 1.049 | .105 | .534 | .6727 |
| Total | *M* | 4.060 | 3.875 | -.185 | 2.611 | 3.214 | .603 |
| (*N* = 86) | *SD* | .553 | .729 | .605 | .507 | .705 | .553 |

*1 and 2 represents pre and post time measures respectively.

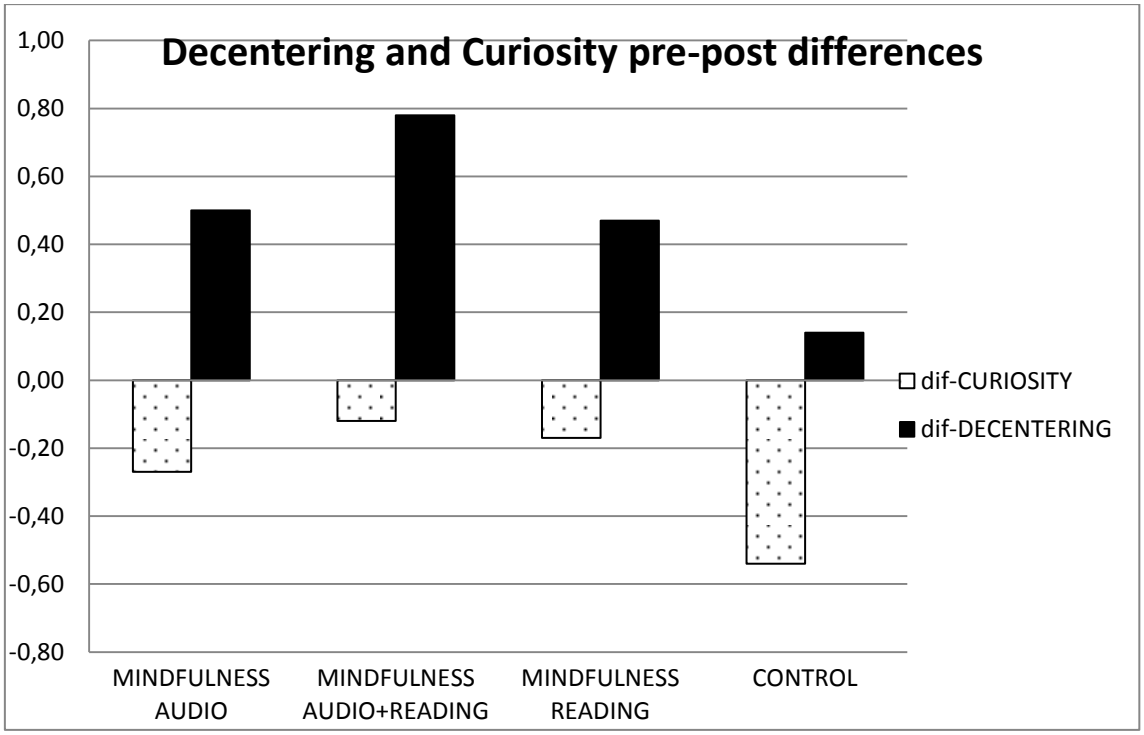



Figure 7. Decentering and Curiosity pre-post mean difference by condition

## DISCUSSION

The present study addresses the limitations existing in the literature of experimental mindfulness elicitation procedures. The proposed procedure explicitly assesses the extent to which mindfulness is elicited. Furthermore, it presents a study of three different formats of presentation with a simple and clear script of instructions.

Results showed good prove of inducing mindfulness decentering state. As expected, no elicitation of curiosity was found. It presents a curious point the fact that curiosity is actually reduced. One possible explanation could be related to the simplicity

of the experiment along with the repeated measures they have to fulfill. Furthermore, some authors have argued against the importance of curiosity in mindfulness (i.e., Brown & Ryan, 2004) and, other authors have not found effects on curiosity in experimental research on mindfulness (Erisman & Roemer, 2010), in line with the results found here. Even we did not expect results in the curiosity dimension; we measured both variables precisely as an additional way of control within the experiment. Participants could be answering in a positive way to increase punctuation after the mindfulness elicitation. However, this might not be the case as curiosity dimension should then be higher after the instructions, and it goes in the opposite direction. Results also show that in all three mindfulness formats, elicitation was given. However, even though there were no differences between format conditions, participants in the audio+reading condition engaged better in the task, whereas participants in audio condition engaged worse. Therefore in the designing process, the researcher could design the experimental conditions either with audio instructions, reading instructions or audio+reading at the same time (accordingly to the other conditions the researcher want to compare it with). However, if the researcher has the option to choose, it would be better to choose for the audio+reading design as it has showed better results. We are aware that mindfulness instructions in natural settings are supposed to be always in an audio format, and we are not encouraging mindfulness instructors to do something different, however for research purpose we do think audio + reading instructions are a better choice.

A limitation of the present study could be the lack of three control conditions for the different format of presentation. However we think that the comparison between mindfulness conditions provides sufficient evidence about the differential effects of the format of presentation as we find differential main effects for time but not for condition.

Future research in the field could be to test mindfulness elicitation using a curiosity related instructions (i.e. raisin exercise) and other possible mindfulness components in the same line as in the present research. Another future direction should also consider examining longitudinal changes at different points of the mindfulness elicitation among the same participants through experimental settings. As suggested by Davidson (2010) the effects of time might produce quantitative but also qualitative leaps on mindfulness.

As a conclusion, implementing the present procedure into mindfulness experimental research should simplify the comparison between studies and help to find out the processes that explain mindfulness and its effects.

# CHAPTER 5:
# BENEFICIAL AND DETRIMENTAL MINDSETS FOR THE GENERATION AND IMPLEMENTATION OF IF-THEN PLANS

Abstract

Mindsets describe cognitive orientation with distinct features that promotes related task completion. As cognitive operations, mindsets are subject to activation. Thus, by inducing or priming mindsets it is possible to test for the effects different cognitive orientations could have on the self-regulation process via implementation intentions. In Study 5, the different mindsets (abstract, concrete and mindfulness mindsets) were compared regarding their effects on the generation of implementation intentions. We assumed that mindsets could have differential effects according to the phase in which they are involved. Thus, in Study 6 we tested mindsets effects on actual performance in a workplace conflict when all participants had an implementation to self-regulate. In Study 7 we conducted a more complex design 2 (high/ low construal level) x 2 (mindfulness/no mindfulness) x 2 (implementation intentions/goal intentions). Our findings showed that mindfulness mindsets benefits the identification of critical cues; concrete mindsets benefits the quality of the if-then plans; abstract mindset impairs performance; and mindfulness mindset under a high (and meaningful) level of construal benefits memory performance regardless if self-regulation is via implementation intentions or goal intentions; however, it reduces helping behavior if goals are not furnished with implementation intention (as compared to non-mindfulness participants). Finally, considerations for designing interventions as well as theoretical implications are discussed.

## BENEFICIAL AND DETRIMENTAL MINDSETS FOR THE GENERATION AND IMPLEMENTATION OF IF-THEN PLANS

Research has shown that implementation intentions (if-then plans) enhance people´s ability to initiate, maintain, disengage from, and undertake further goal striving and thereby increase the likelihood that goal intentions are achieved successfully in a wide variety of situations (see meta-analysis, Gollwitzer & Sheeran, 2006). Thus, it looks appropriate to turn the question of how the self-regulation strategy of forming implementation intentions could be best taught in interventions, as proposed recently in the literature (Gollwitzter & Oettingen, 2011). Our present studies try to answer this question from the point of view of the mindset model of action phases (Gollwitzer, 1990; Heckhausen & Gollwitzer, 1987). This model takes a temporal perspective on the course of action and suggests there are four main phases: pre-decisional (which corresponde to motivation), pre-actional (volition), actional (volition), and finally a post-actional phase (motivation). The pre-decisional phase involves setting preferences among wishes and desires by deliberating their desirability and feasibility, and setting goals, whereas the pre-actional phase involves planning and the actional phase involves action itself (Heckhausen & Gollwitzer, 1987). These phases are distinct as well as consecutive phases of goal pursuit . They differ in terms of the task that is to be solved by the individual, as well as in terms of the cognitive orientations or mindsets involved. Therefore, we will approach the above mentioned question in this particular way: do different mindsets affect differently in pre-actional and actional phases? Particularly, does higher (versus lower) construal level benefit the generation and the implementation of if-then plans? Does another type of mindset such as mindfulness benefit generation and the implementation of if-then plans? And, should we integrate any of these particular construal levels and/or mindfulness with implementation intention strategies?

All these questions are important not only for basic research, but for applied psychology. For example when clinical psychologists design their interventions they should take into account the possible effects that the way instructions are given could cause in terms of elicited mindsets. Same applies when organizational leaders have to communicate instructions to move forward into a project, as well as for teachers in educational settings for instance, and of course for self-regulation towards one´s personal and valued goals.

## CONSTRUAL LEVEL THEORY OF PSYCHOLOGICAL DISTANCE AND SELF-REGULATION

Construal Level Theory (Trope & Liberman, 2010) consider high-level construal as relatively abstract, coherent, and superordinate mental representations, compared with low-level construal. An abstract representation of an object retains focus on central features and omits incidental details, but at the same time adds information about the value of the object and its relations to other objects. There are many levels of abstractness. Actions form hierarchies, and concrete goals can be translated into more abstract, superordinate goals and values. Within these action hierarchies, asking the question of why an action is performed represents a superordinate abstract level; whereas asking the question of how the action is performed represents a subordinate concrete level (Trope & Liberman, 2010). For instance, desirability concerns involve the value of the action´s end state and represent high-level construal features, whereas feasibility concerns involve the means used to reach the end state and represent low-level construal features. In addition, CLT suggests that CL and psychological distance are related. Psychologcial distance is "a subjective experience that something is close or far away from the self, here and now" (Trope & Liberman, 2010). It reference point is the self, thus psychological distance increases as the object is subjectively considered as far from thy self. Its relation to CL regards to the fact that often, as the psychological

distance from an object increases, the person tends to represent the object using higher levels of construal. And vice versa, high-level construal will bring to the person´s mind more distant objects. As it can be noticed, psychological distance and construal level are not the same but they are related.

Stemming from CLT Fujita and colleagues (Fujita, Trope, Liberman, & Levin-Sagi, 2006) proposed an analysis of self-regulation as a conflict between high-level construal versus low-level construal. The authors argued that self-regulation could be conceptualized as making decisions and acting in accordance with global, high-level construal of the situation rather than local, low-level construal of the situation. If individuals focused on the superordinate central features instead of the subordinate incidental features, it would be more likely that they act according to their personal superordinate values instead of acting according to incidental and momentary temptations. Self-regulation failure would be this last way of acting. In their studies, the authors effectively found that high-level construals revealed a variety of beneficial effects for self-regulation: preferences for immediate outcomes over delayed outcomes decreased; participants showed greater physical endurance and stronger intentions to exert self-regulation; and in addition participants evaluated temptations less positively.

In this line, more research has shown that priming a distant future (high psychological distance) made participants to formulate their actions in a higher level of abstractness, and their decisions in a subsequent and unrelated task were more value-congruent (e.g, Giacomantonio, De Dreu, Shalvi, Sligte, & Leder, 2010; Torelli and Kaikati, 2009). For example, Giacomantonio and colleagues (2010) as a manipulation of the level of construal primed participants with either high temporal distance (i.e., name ten activities you could be involved in next year) or low temporal distance (i.e,

name ten activities you could be involved in next Monday). Participants under high temporal distance wrote down the activities worded in a higher level of construal than low temporal distance participants. In addition, the authors measured participants pro-social and pro-selves values and after that confronted participants with a task were participants could either cooperate or compete. Results from that task showed that only participants under high level of construal showed higher value-behavior correspondence, pro-social participants were more cooperative and pro-selves participants were more competitive (this difference was not found under low construal level). In addition, from a set of studies Torelli and Kaikati (2009) showed that inducing an abstract mindset predicted: more value-congruent behavioral intentions regarding benevolence, power, universalism and self-direction domain; the intention to spend more time volunteering after participants had read a volunteer program flyer in which universalism values were relevant; and the search for more valued-congruent information about products. In the same (but reverse) line, Eyal and colleagues have pointed out that values have greater impact on how individuals plan their distant future than their near one (v.g., Eyal, Sagristano, Trope, Liberman & Chaiken, 2009). These authors found that although values predicted participants' intentions for the distant future, their intentions for the near future were better predicted by feasibility concerns.

How is this research connected to self-regulation via implementation intentions? To our knowledge, there is only one study related to how level of construal could affect self-regulation by implementation intentions. Data from two studies (Wieber, Sezer, & Gollwitzer, 2014) showed that asking why (versus asking how) benefits goal intention effects (similarly to studies from Fujita et al. 2006) but impairs implementation intention effects on behavior. In fact, the authors found that whereas goal intention participants' endurance in a handgrip task was not affected under why-mindset (and

impaired under how); implementation intention participants' endurance was actually enhanced after a how-mindset. In their second study, participants did a dual task with different levels of difficulty. In this situation, asking why only helped participants with goal intentions (as compared to implementation intentions) when the task difficulty was low, but not when task difficulty was high. Performance on high level of difficulty was as impaired for goal intention participants as it was for implementation intention participants. Interestingly, only implementation intention participants performed better under both low and high levels of task difficulty, but only when asking how mindset was involved.

Putting it all together, it seems like high levels of construal (v.g., abstract mindset) benefit the relation value-behavior intention, and implementation intentions benefit self-regulation towards values and goals although they benefited from concrete mindsets; Therefore, does high level construal benefit or impair action when we already have an implementation intention strategy formed? Is there any differential effect when we only form goal intentions? And moving further: does the level of construal affect other phases of the goal striving process such as the identification of critical cues and the generation of implementation intentions?

## MINDFULNESS AND SELF-REGULATION

In addition to high (e.g., abstract; desirability) and low (e.g., concrete; feasibility) construal level mindsets, we are particularly interested in a particular mindset: mindfulness. For at least two reasons: as well as implementation intention interventions, mindfulness interventions are nowadays growing exponentially. However, there are few experimental studies about its mechanisms of action (Davidson, 2010). It is proposed as a powerful state of mind that helps to overcome difficulties and regulate emotions and

behavior (Kabat-Zinn, 1991; Bishop et al., 2004; Brown, Ryan, & Creswell, 2007; Keng, Smoski & Robins, 2011). Therefore, it is of research interest to include it as a mindset that could affect the different phases of self-regulation. Second reason is that, if we analyze the instructions of mindfulness exercises they look like they promote both low level construal (e.g., noticing all peculiarities and little details) and high level construal (e.g., abstracting the "self-presence" from time and roles in life) at the same time. Thus, it should be really interesting to test it in comparison with already known high and low construal level mindsets.

Mindfulness has been defined in several ways. From Kabat-Zinn definition (e.g., Kaban-Zinn, 2005): "an openhearted, moment-to-moment, nonjudgmental awareness"; to Bishop and colleagues operational definition (Bishop, et. Al., 2004) that considers mindfulness as: "self-regulation of attention so that it is maintained on immediate experience while approaching to it with an orientation of curiosity and acceptance". Or the approach of Langer and colleagues (e.g., Langer & Moldoveanu, 2000) who understand mindfulness as the process of drawing novel distinctions and categories that would lead to greater sensitivity to one´s environment as well as a state ofmore openness to information, and a enhanced awareness. Beyond its multiple definitions, one key component has been emphasized as an important mechanism of mindfulness: distancing or decentering from internal and external experiences (Feldman, Greeson, & Senville, 2010) in a non-judgmental way. Therefore, mindfulness state would develop a distance or "decentered" relationship between one´s internal and external experiences.

Mindfulness has been study mainly in the context of psychological health and well-being (Keng, Smoski, Robins, 2011) and the main source of evidence comes from non-lab intervention studies and studies measuring mindfulness-trait. There are some

laboratory studies that manipulate mindfulness state though. For example, relatively short mindfulness instructions have shown beneficial effects on responses to aversive and emotional negative stimuli (Arch & Craske, 2006; Erisman & Roemer, 2010), problem solving (Ostafin & Kassman, 2012), effects on time perception (Kramer, Weger, & Sharma, 2013), as well as the beneficial effect of restoring self-regulatory resources (Friese, Messner, & Schaffner). In addition, prior research showed that individuals in a mindfulness state are in an increased openness and receptive state which may be crucial in accessing to relevant information (Bishop et al. 2004; Dane 2011). Interesting for our studies as well is the research of the protective effect of mindfulness training on working memory capacity and affective states (Jha, Stanley, Kiyonaga, Wong, & Gelfand, 2010). Their study recruited military participants during a high-stress period, and they were trained with 24h mindfulness training over an eight week period. They found that participants with high mindfulness practice during that period of stress did not reduce their working memory capacity, as opposed to participants with low practices as well as control participants.

From all previous studies, it seems that mindfulness benefits emotion regulation as well as self-regulatory resources till the point that it might protect even working memory capacity in a highly stressful situation. Therefore, regarding our present research, which will be mindfulness effects on self-regulation via implementation intentions: Will an open-mindedness mindfulness state benefit the identification of critical cues and the generation of implementation intentions? Will mindfulness mindset affect action when we already have an implementation intention formed to deal with conflicting goals and negative affect? Will we find any interaction effect between mindfulness mindset, construal level and implementation intentions on behavior?

## THE PRESENT RESEARCH

In the current research, three experiments were designed to test whether different cognitive orientations or mindsets might allow for easier and more effective completion of the different action phases: the identification of critical cues, the generation of quality implementation intentions and action itself once people have already formed implementation intention to self-regulate. In addition, we wanted to test for possible interaction effects of the different mindsets and implementation intentions on behavior. For that purpose, we conducted three different experimental designs:

In our first experiment (Study 5), we first primed participants either with one of the different levels of construal (abstract/concrete), mindfulness mindset (mindfulness/self-referential mindfulness) or the control mindset (where no particular mindset was primed). In all of the priming conditions, participants had to engage actively in the task at hand (reading and writing according to the instructions). After that, we asked participants to identify critical cues that could hinder their behavior towards a valued goal. When forming implementation intentions, the cues can either be related to good opportunities to act or to obstacles to goal striving (Gollwitzer & Sheeran, 2003). In our studies, we asked participants to identify their obstacles. In this line, research has demonstrated that imagining the desired future with the present negative reality is a particularly effective strategy of discovering powerful barriers and hindrances that stand in the way of realizing desired outcomes (Oettingen, 2000; Oettingen et al., 2001). Similarly, asking participants to imagine their valued goal and the obstacles they actually have present prior to if-then planning ensure that people gear their implementation intention to precisely those obstacles that present the greatest

obstruction to goal attainment (Gollwitzer & Sheeran, 2003). After the identification of critical cues, participants formed if-then plans towards the valued goal. As prior studies have shown that not only the number of if-then plans is important but also their quality is even more important (i.e., de Ve, Oenema & Brug, 2011; de Vet, Gebhardt, Sinnige, Van Puffelen, Van Lettow, & de Wit, 2011), we analyzed the content of the if-then plans participants had generated considering their potential quality for being applied.

In our second experiment (Study 6) we confronted participants with a more naturalistic situation: the workplace conflict situation (see above, Study 1, 2 & 3). All participants had an implementation intention strategy (that in previous studies showed to be successful) to deal with emotions and move towards two conflicting goals: group task performance (helping colleagues), and individual task performance (paying attention to information to retain its content). Thus, to test if different mindsets affect self-regulation by implementation intentions, participants right before they started the workplace conflict situation were primed with abstract, concrete, mindfulness or control mindset. Similar to Study 5, all priming conditions consisted in active tasks (reading and writing according to the instructions).

Finally, in our third experiment (Study 7) we used a more complex design 2 (high/low construal level) x 2 (mindfulness/no mindfulness) x 2 (implementation intentions/goal intentions) to look for possible interactions effects and to understand better mindfulness mindset. Participants were again confronted with the workplace conflict situation, however they were first primed with either high or low construal level mindsets. In this study, the manipulation of high and low construal level was different from our previous studies. Participants did not engage actively in a priming task (asking "why" or "how"), but they listened to a passage regarding the why (high-level

construal) or how (low-level construal) of the study in which they were participating. We did that in order to control the duration time of the experiment[1], as well as the content related to the level of construal instructions. After that mindfulness (or not mindfulness) mindset was elicited. Finally, they were given an if-then plan (or a mere goal intention) instruction and they started the workplace conflict task.

Our general expectations are in one hand that mindfulness should benefit the identification of critical cues as mindfulness is related to open-mindedness and receptiveness (Bishop et al. 2004; Dane 2011). Regarding the level of construal, in one hand we could expect that low CL benefited the identification ofcritical cues as low CL focuses attention to the concrete details of a situation (Trope & Liberman, 2010). On the other hand, a broader perspective (high CL) could be better to identify other aspects of the situation. Thus, our hypothesis do not go in any particular direction regarding the level of construal. . However, we do expect differences regarding the content (affecting the quality of subsequent if-then), as participants in high level construal should present certain readiness to identify higher distant objects and less incidental information (Trope & Liberman, 2010) (Study 5).The quality of the if-then plans involves specificity (de Velt, et al 2011). In this line, once participants generated the if-then plans we expected low construal level to be more beneficial regarding their quality (Study 5). Accordingly to theory on implementation intentions (Gollwitzer, 2012), as well as prior research (Wieber, et al., 2014), we expect that high level construal (versus low level) impairs the efficacy of self-regulation via implementation intentions in the workplace conflict situation (Study 6), but not via goal intentions (Study 7). However, due to the unclear level of construal mindfulness could represent, we expect some kind

[1] In this study, we had a limitation of time regarding the use of laboratory where the study was conducted

of interaction regarding construal level, mindfulness and implementation intentions (Study 7).

## STUDY 5: MINDFULNESS AND CONCRETE MINDSETS PROMOTE PLANNING TOWARDS VALUE GOALS

In this experiment we wanted to test how different mindsets might affect the process of planning towards a valued goal, both identifying critical situational cues and generating subsequent if-then plans. In this study, all participants had the same valued goal "making a beloved person happy". From the analysis of personals goals and aspirations carried out by Grouzet et al. (2005) across 15 cultures (including Spain), authors proposed four basic intrinsic goals (affiliation, self-acceptance, community feeling, and physical health). This classification built on a theoretical distinction between intrinsic and extrinsic goals derived from Self Determination Theory (e.g., Deci & Ryan, 2000). Intrinsic goals fulfill psychological needs for relatedness, autonomy, and competence and are inherently satisfying to pursue. Thus, "making happy a beloved person" seemed likely to be an intrinsic valued goal in Spanish culture, as well for our potential participants. In addition, we first primed participants with a different mindset: abstract (high CL), concrete (low CL), mindfulness or control. After that, participants were put into a planning scenario where they had to identify critical cues in their goal-striving process of "making a beloved person happy". Participants identified critical cues and generated different if-then plans according to the behaviors they considered they might need to perform (in order to move towards the valued goal). Our expectations are that mindfulness mindsets benefit the identification of critical cues due to its open-mindedness and receptiveness characteristics (Bishop et al. 2004; Dane 2011); and that concrete mindset benefit the quality of the if-then plans due to specificity is determinant for the quality of the if-then plans (de Velt, et al 2011), and

concrete mindset (low CL) should focus on specific details of the situation (Trope & Liberman, 2010).

## METHOD

### PARTICIPANTS AND DESIGN

One hundred and ninety-two undergraduate students from Autonoma University of Madrid, 147 female (76.6%), 45 male (23.4%), mean age 20.79 (*SD* = 4.645), participated in the experiment in exchange of one hour course credit. The participants were randomly assigned to one of the five conditions: control mindset, abstract mindset, concrete mindset, mindfulness mindset, and mindfulness self-referencial (mindfulness-SR).

### MATERIALS AND PROCEDURE

Participants arrived in groups of 7 to 8 people. Then, all participants were randomly assigned to the different conditions (control, abstract, concrete, mindfulness, and self-reference mindfulness). Then, participants took seats in individual cubicles equipped with a desktop computer. Once seated, participants should simply follow the instructions appearing on the computer screens. The first information presented on the computer screen explained that the study was on personality and thought exercises. Secondly, they all were requested to answer demographic questions. Next, all participants were told that they were going to do different exercises in the following screens. After that, participants in each condition did one of the priming tasks: control, abstract, concrete, mindfulness, and mindfulness-SR respectively for each condition. The priming tasks in the control condition consisted in reading and listening to a small

text regarding physical exercise and health, and thinking about words, ideas or elements related to the text:

*Physical exercise is any bodily movement repeated with the purpose to stay healthy or to recover health. Often it is also directed toward improving athletic ability and / or skill. Frequent and regular physical exercise is necessary in the prevention of some diseases such as heart disease component, cardiovascular disease, type 2 diabetes, obesity, back pain and more. Physical exercise should be practiced in a moderated and balanced way, several times a week, but no more than recommended for one's body until your body gets used to a certain routine. Excessive exercise is not recommended because too much exercise can lead to physical harm of parts of the body, for example, knees suffer when you run or jump, and if you make it so often that you force your body, you may find yourself with harmful effects of excessive exercise.*

The abstract and concrete conditions followed the instructions of the validated procedure by Freitas, Gollwitzer, & Trope (2004). Their exercises procedure consists in diagrams requiring participants to think either: (a-abstract) increasingly abstractly about an activity, by successively indicating why they would engage on it or (b-concrete) increasingly concretely about an activity, by successively indicating how they would engage on it. The mindfulness condition followed the instructions of the experimental mindfulness procedure generated in Study 4 (within this thesis). This experimental mindfulness procedure is based on the mindfulness exercise *The Observer* typically used in mindfulness based therapies (i.e., Wilson & Luciano, 2002). Participants had to observe and to take notice of their breath, position, and themselves being present despite the different roles they perform in their life. The mindfulness-SR condition was a quite similar text as in the control condition, however the text included words and sentences

regarding self-examination, self- analysis and self-observation. Participants read the following:

Physical exercise is any bodily movement repeated with the purpose to stay healthy or to recover health. Often it is also directed toward improving athletic ability and / or skill. Frequent and regular physical exercise is necessary in the prevention of some diseases such as heart disease component, cardiovascular disease, type 2 diabetes, obesity, back pain and more. Physical exercise should be practiced in a moderated and balanced way, *paying attention to internal physical changes to learn and to understand the cause-effect relationship between the actual physical movement and its direct effect to the perceived internal changes*. Excessive exercise is not recommended because too much exercise can lead to physical harm of parts of the body. Therefore, *it is important to remark the balance of forces, both internal and external. To do so, self- knowledge through critical self-analysis and self - awareness exams while physical activity is performed are really helpful.*

Although we were more interested in the mindfulness procedure that better reflects mindfulness interventions; we decided to include another mindfulness procedure to account for a different approach to mindfulness. For instance, Langer & colleagues (e.g., Langer & Piper, 1987) used simple linguistic variations to elicit mindfulness (versus mindlessness). As an experimental check, participants in all conditions had to write down some words or sentences following the instructions of what they had read and listened to.

Right after the priming task, all participants followed the same instructions from this point till the end of the experiment. First, a planning exercise about an educational goal was explained to them. Participants read the following: "*Another exercise is to*

*think about your own life goals and to plan actions towards them, as planning helps to achieve your goals. For example, some people could have the goal getting good grades. However, one can experiment difficulties to achieve this goal. For instance: studying less than planned, dealing with the temptation of going out with friends instead of staying at the library, dealing with negative mood, demotivation, etc. All these problems that people may find right before they act towards their goals represents critical situations or critical cues. If your desire and valued goal is getting good grades, and one needed behavior to achieve it is going to class, then finding your friends at the university cafeteria may be a critical cue that could hinder your behavior. It is important to overcome the critical cue (or cues) in order to behave accordingly to your desire and valued goal. Otherwise, the critical cues may hinder your behavior towards your goals. In this line, the next exercise lies in identifying critical cues that could hinder your behavior towards a valued goal.*"

In the next screen they had to fulfill the same planning exercise of the past example but this time the planning exercise was about the goal "making a beloved person happy". Participants were told to write down as many critical cues as they could identify. In this exercise the first dependent variable was measured and it was operationalized as the number of critical cues identified by the participants. After the collection of the critical cues, new instructions appeared on screen. Participants read the following: "*One strategy that may help you to overcome the critical cues and therefore to achieve your goals is making if-then plans. An if-then plan has this format: If I encounter situation x, then I will perform response z! Thereby, a critical situation is linked with a goal-directed behavior. For instance, if the critical cue "coming across my friends at the cafeteria" happens, then I will set a time to meet them later (alternative behavior) and I will go to class (desired behavior), in order to achieve good*

*grades (valued goal). Thus, in this exercise you must write down as many if-then plans as you can, linking your critical cues to your valued goal directed behavior*." In the next screen the critical cues they had written down reappeared and participants were again told to generate and write down if-then plans with their critical cues. The if-then plans participants generated were recorded to later study their quality as our second dependent variable.

After participants had fulfilled the if-then plans table a next screen appeared. One of our aims was to study the effects of mindfulness mindset, thus, all participants had to complete a short version of The Kentucky Inventory of Mindfulness Skills (KIMS; Baer, Smith & Allen, 2004) as a control measure of trait mindfulness. The KIMS is an instrument designed to measure four elements of mindfulness: observing, describing, acting with awareness, and accepting without judgment. Items include, "I notice when my moods begin to change" (observe); "I'm good at finding words to describe my feelings" (describe); "When I do things, my mind wanders off and I'm easily distracted" (act with awareness); and "I tell myself that I shouldn't be feeling the way I'm feeling" (accept without judgment). Items are rated on a 5-point Likert-type scale (never or very rarely true to always or almost always true). After completed the KIMS, we controlled for the importance of the goal as well. For that purpose, all participants were asked if the goal "make a beloved person happy" represented a personal value for them ("yes" or "no" answer). Finally, all participants were debriefed and thanked.

## DEPENDENT VARIABLES

Participants' cues were recorded as our dependent variable *number of critical cues identified*. Regarding the i*mplementation intention quality* we proceed as follows: the

implementation intentions were rated in four different ways: 1) specificity, 2) avoidance / approach, 3) affirmation/negation, and 4) deliberative/implemental. Regarding specificity our scoring criteria were based on previous studies of the quality of implementation intentions (e.g., de Velt et al 2011). One point was awarded for specifying each of the four components of the implementation (i.e., what, how, when, where). Afterwards, a dichotomous variable, plan specificity, was computed as 0- low specificity (1-2 points previously awarded), and 1- high specificity (3-4 points previously awarded).

Regarding the avoidance / approach criteria: goals can be conceived in terms of approaching a positive outcome or end state (approach goals) or in terms of avoiding a negative outcome or end state (avoidance goals). Prior research showed that avoidance goals are less optimal, and they predict a large number of negative outcomes than approach goals (e.g., Heimple, Elliot, & Wood, 2006). Thus, we created a dichotomous variable, plan orientation, where "0" referred to avoidance orientation and "1" referred to approach orientation.

Regarding the negation / affirmation criteria: prior research has shown that negation implementation intentions are most likely to result in ironic rebound effects and turn out to be ineffective when they have a negating structure (Adriaanse, van Oosten, de Ridder ,de Wit, & Evers, 2011). Thus, we generated a dichotomous variable, plan affirmation, where "0" referred to a negation plan, and "1" referred to an affirmation plan.

Regarding the deliberative / implemental criteria: participants sometimes built their if-then plans in a deliberative way (e.g., If I feel tired, then maybe I should try to go to bed earlier tonight) versus an actual implemental way (e.g., If I feel tired, then I

will go to bed earlier tonight). As a deliberative orientation is associated with the pre-decisional phase (versus implemental) consequently if-then plans formulated in a deliberative way are considered to be of less quality (Achtziger, & Gollwitzer, 2008). Thus, we again generated a dichotomous variable, where "0" referred to a deliberative plan, and "1" referred to a proper implemental plan. Finally, as a global indicator of quality the four criteria were combined and global scores were considered as follows: low quality (0-1), medium quality (2-3), and high quality (4). Two independent raters judged the implementation intentions. Cohen's kappa inter-rater agreement ranged from .62 to1. Landis and Koch (1977) proposed a scale interpretation of Cohen´s kappa in which an acceptable agreement corresponds to a value greater than or equal to 0.40, and excellent to values above 0.75. In this study, three of the Cohen´s kappa values obtained (avoidance / approach; affirmation/negation; deliberative/implemental) were between 0.75 and 1. These values according to Landis and Kosch (1977) are considered excellent levels of agreement between observers. The Cohen's kappa value of specificity was lower (.62) way higher than the acceptable value of .40. Disagreement was solved by discussion.

## RESULTS AND DISCUSSION

### MANIPULATION CHECKS AND CONTROL VARIABLES.

#### INSTRUCTIONS

We tested whether participants had processed the priming instructions correctly. For this purpose, we check if the answers collected in each condition were actually coherent with respective condition instructions. We were especially careful, so participants that did not answered coherent with their assigned condition were eliminated from the analysis (29 participants were removed from the analysis).

### GOAL IMPORTANCE

Regarding goal importance, 158 participants out of 163 considered "making a beloved person happy" as a personal value. Thus, we excluded these six participants for the final analysis (2 participants from control condition, 2 from abstract condition, and 1 from concrete condition). Finally, one hundred and fifty-eight participants were included in the analysis ($N_{control}$ = 29; $N_{abstract}$ = 33; $N_{concrete}$ = 36; $N_{mindfulness}$ = 29; and $N_{mindfulness\text{-}SR}$ =31).

### KIMS

Participants' scores on the KIMS (trait mindfulness) were calculated, and the five conditions were subsequently compared. As shown by the one way ANOVA, participants in the five conditions did not differ in KIMS scores $F$ (4, 153) = .192, *ns.*

## DEPENDENT VARIABLES

The main dependent measures were the number of critical cues participants identified and the quality of the if-then plans participants generated (the number of if-then plans generated was the same as the number of critical cues as the computer recorded the cues and showed the cues again when participants had to generate the if-then plans).

### NUMBER OF CRITICAL CUES

A one-way analysis of variance (ANOVA) indicated significant variation among the five conditions $F$ (4, 153) = 3.296, $p$ = .013 (see Figure 8). Means are presented in Table 2. Pairwaise comparisons among the groups indicated that participants in the mindfulness self-reference condition identified more critical cues than participants in abstract ($p$ =.005), concrete ($p$ =.010), and control conditions ($p$ = .016). Participants in

the mindfulness condition, identified more critical cues than participants in abstract condition ($p$ = .032), concrete condition ($p$ = .059), and control condition ($p$ = .079). Mindfulness and mindfulness-SR condition were not different. No differences were found among control, abstract and concrete conditions (each comparison, $t < 1$) neither. If we controlled for mindfulness trait as measured by the KIMS, results from the omnibus ANOVA remain significant ($F$ (4, 152) = 2.666, $p$ = .024).

Table 2. Means and *SD* of Number of critical cues identified by condition

| | | | |
|---|---|---|---|
| Control | 29 | 5,24[a,c] | 1,59 |
| Abstract | 33 | 5,06[a] | 1,73 |
| Concrete | 36 | 5,22[a] | 2,08 |
| Mindfulness | 29 | 6,20[b,c] | 2,45 |
| Mindfulness-SR | 31 | 6,54[b] | 2,39 |

[a,b,c] Same upper-letter indicates significant difference

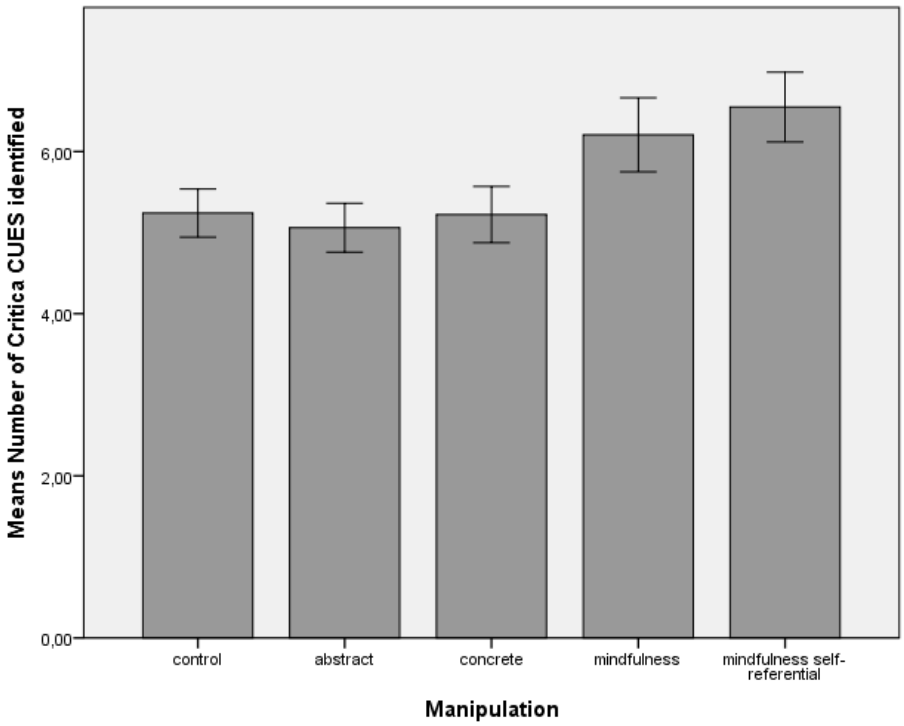



Figure 8.- Number of critical cues identified by condition

## QUALITY OF IF-THEN PLANS

As above mention, the number of if-then plans participants generated was the same than the number of critical cues. Participants could see in the computer screen their critical cues and they generated the same number of if-then plans accordingly. As not all participants generate the same number of if-then plans, but all of them generate at least one, we considered the first if-then plan participants generate for the quality analysis. Thus, we proceed to analyze the quality of the if-then plans generated. Regarding specificity, we found significant differences among conditions as reveal by the chi-square analysis, $X^2$ (4) = 13.808, $p$ = .008; likelihood ratio (4) = 12.491, $p$ = .014.

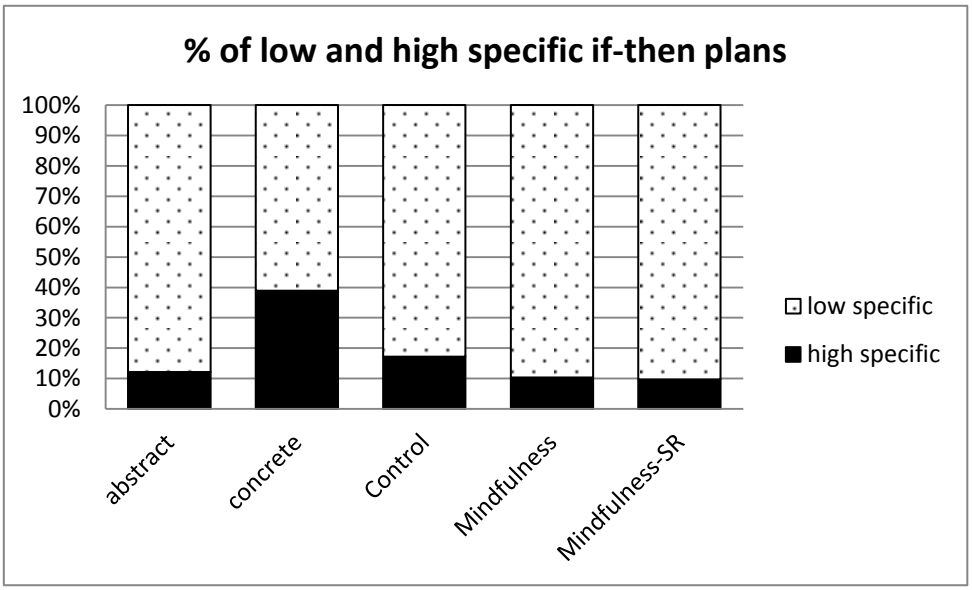



Figure 9.- Percentage of Low and High specific plans by condition

Table 3- Crosstab Specificity by Condition

**Crosstab Manipulation * specificity**

| | | | specificity | | Total |
|---|---|---|---|---|---|
| | | | 0 | 1 | |
| Manipulation | control | Recuento | 24 [a] | 5 [a] | 29 |
| | | % dentro de specificity | 82,8% | 17,2% | 100,0% |
| | | % dentro de specific1DICO | 18,6% | 17,2% | 18,4% |
| | abstract | Count | 29 [a] | 4 [a] | 33 |
| | | % dentro de Manipulation | 87,9% | 12,1% | 100,0% |
| | | % dentro de specificity | 22,5% | 13,8% | 20,9% |
| | concrete | Recuento | 22 [a] | 14 [b] | 36 |
| | | % dentro de Manipulation | 61,1% | 38,9% | 100,0% |
| | | % dentro de specificity | 17,1% | 48,3% | 22,8% |
| | mindfulness | Recuento | 26 [a] | 3 [a] | 29 |
| | | % dentro de Manipulation | 89,7% | 10,3% | 100,0% |
| | | % dentro de specificity | 20,2% | 10,3% | 18,4% |
| | Self-reference mindfulness | Recuento | 28 [a] | 3 [a] | 31 |
| | | % dentro de Manipulation | 90,3% | 9,7% | 100,0% |
| | | % dentro de specificity | 21,7% | 10,3% | 19,6% |
| Total | | Recuento | 129 | 29 | 158 |
| | | % dentro de Manipulation | 81,6% | 18,4% | 100,0% |
| | | % dentro de specificity | 100,0% | 100,0% | 100,0% |

[a,b] Different upper letters indicate significant differences

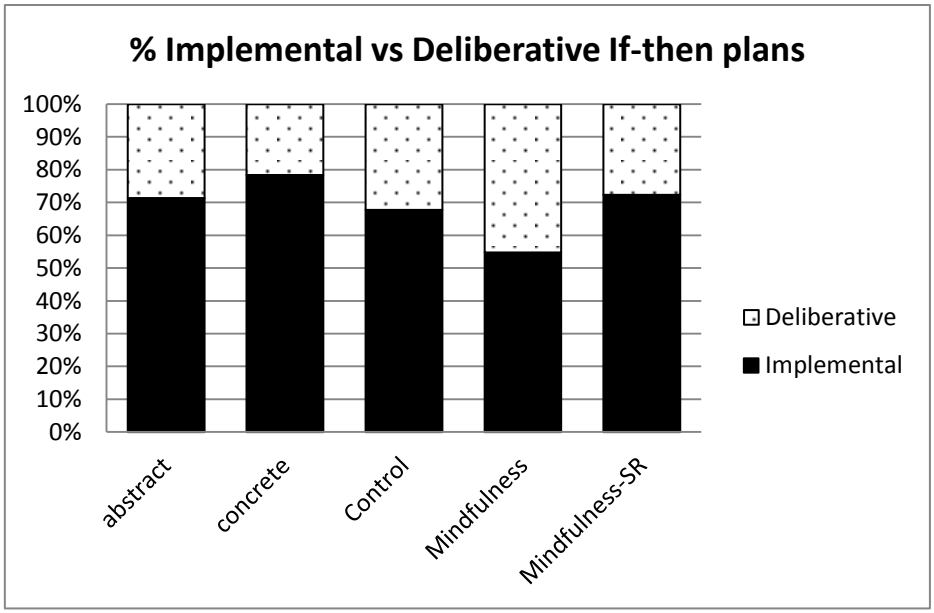



Figure 10- Percentage of Deliberative and Implemental plans by condition

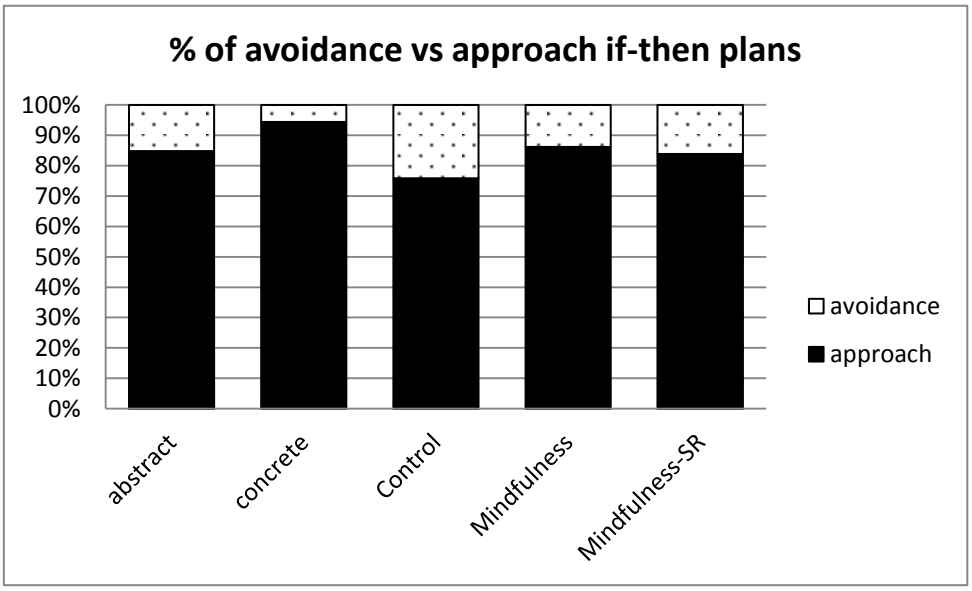



Figure 11.- Percentage of Avoidance and Approach plans by condition

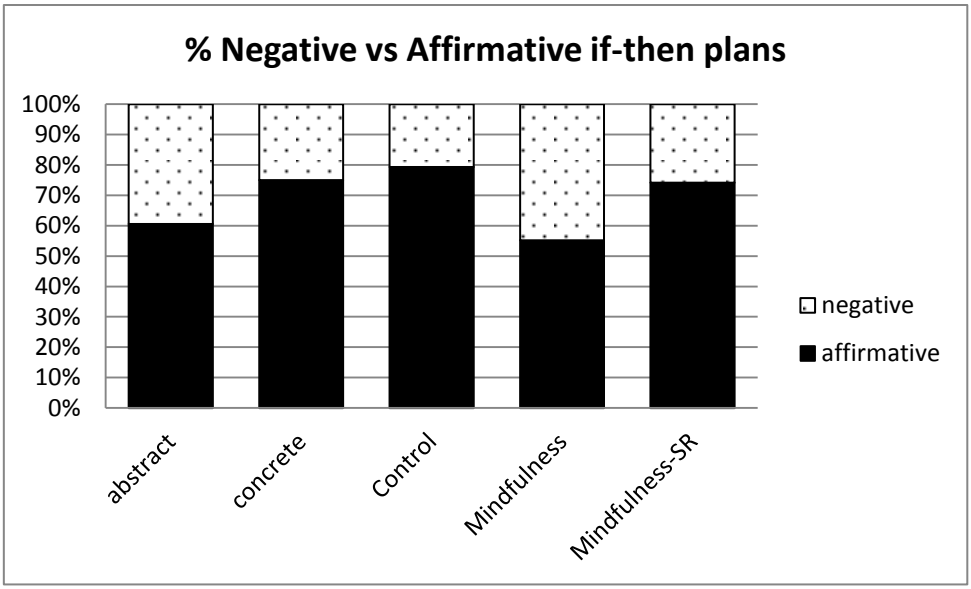



Figure 12.- Percentage of Negative and Affirmative plans by condition

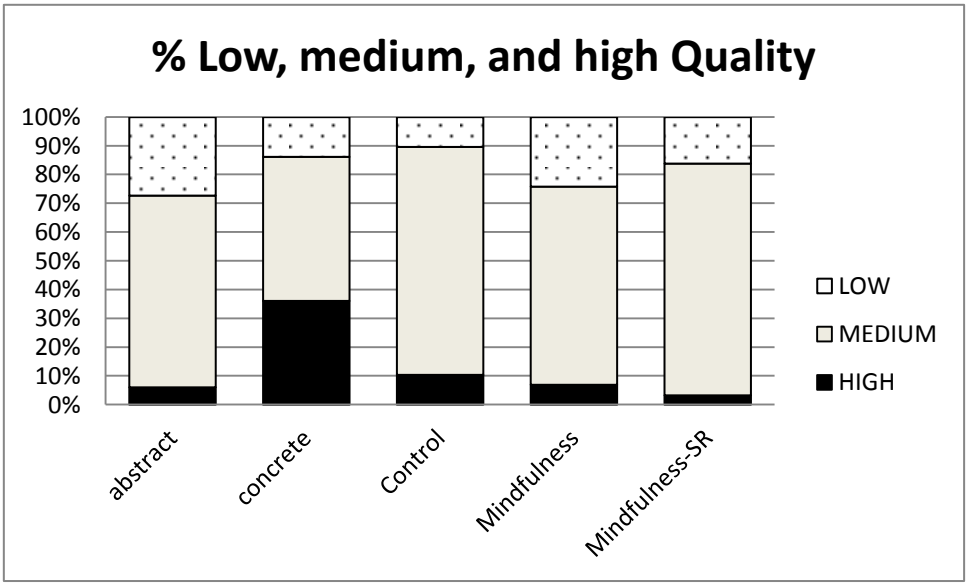



Figure 13.- Percentage of low, medium and high QUALITY plans by condition

Table 4.- Crosstab Quality by Condition

**Crosstab Manipulation * QUALITY**

| | | | QUALITY | | | Total |
|---|---|---|---|---|---|---|
| | | | low | medium | high | |
| Condition | Control | Recuento | 3 [a] | 23 [a] | 3 [a] | 29 |
| | | % dentro de Manipulation | 10,3% | 79,3% | 10,3% | 100,0% |
| | | % dentro de QUALITY | 10,3% | 21,3% | 14,3% | 18,4% |
| | Abstract | Recuento | 9 [a] | 22 [a] | 2 [a] | 33 |
| | | % dentro de Manipulation | 27,3% | 66,7% | 6,1% | 100,0% |
| | | % dentro de QUALITY | 31,0% | 20,4% | 9,5% | 20,9% |
| | Concrete | Recuento | 5 [a] | 18 [a] | 13 [b] | 36 |
| | | % dentro de Manipulation | 13,9% | 50,0% | 36,1% | 100,0% |
| | | % dentro de QUALITY | 17,2% | 16,7% | 61,9% | 22,8% |
| | Mindfulness | Recuento | 7 [a] | 20 [a] | 2 [a] | 29 |
| | | % dentro de Manipulation | 24,1% | 69,0% | 6,9% | 100,0% |
| | | % dentro de QUALITY | 24,1% | 18,5% | 9,5% | 18,4% |
| | Mindfulness-SR | Recuento | 5 [a] | 25 [a] | 1 [a] | 31 |
| | | % dentro de Manipulation | 16,1% | 80,6% | 3,2% | 100,0% |
| | | % dentro de QUALITY | 17,2% | 23,1% | 4,8% | 19,6% |
| Total | | Recuento | 29 | 108 | 21 | 158 |
| | | % dentro de Manipulation | 18,4% | 68,4% | 13,3% | 100,0% |
| | | % dentro de QUALITY | 100,0% | 100,0% | 100,0% | 100,0% |

[a,b] Different upper letters indicate significant differences

As it is shown in Table 3 and Figure 9, only concrete condition presents higher levels of specificity than the rest of conditions. Regarding avoidance / approach, negation / affirmation, and deliberation / implementation criteria, no significant differences were revealed by respective chi-square analysis. However, as it can be notice in their respective graphs (see Figure, 10,11, and 12) the concrete condition apparently shows better results. In this line, analyzing the global quality score, we have found high significant differences among conditions, $X^2$ (8) = 25.278, $p$ = .001; likelihood ratio (8) = 22.434, $p$ = .004. This high effect it is not due only to the specificity criteria, as the combination of the four criteria turned out to be even more significant. Again, concrete condition is the only condition with more high quality if-then plans (Table 4, Figure 13).

Results support our hypothesis regarding the beneficial effects of mindfulness mindsets for the identification of critical cues. In line with the literature (Bishop et al., 2004; Dane, 2011), apparently mindfulness state represents an open-mindedness state in which participants could easily retrieved information. Mindfulness showed differential effects from abstract and concrete mindsets at the beginning of the pre-actional phase. We did not find differences between concrete and abstract mindsets in this particular moment of planning. However, we did find differences regarding the quality of the if-then plans participants generated. A concrete mindset benefits the quality of the if-then plans as it was expected. Apparently, making participants to think "how" in a previous unrelated task benefited the generation of if-then plans. It makes sense that under a low CL mindset participants focused on specific details of their situation (Trope & Liberman, 2010) and subsequently they were able to specify better if-then plans. Nevertheless, the combination of the four quality criteria (specificity, approach, affirmative and implemental) was even more significant than the specificity criteria by

itself. Thus, not only it was beneficial regarding specific details but also regarding the other criteria. Concrete mindset showed differential effects from abstract and mindfulness mindsets at the end of the pre-actional phase. Interestingly, mindfulness mindset did not benefit the quality of the plans. In fact (see graphic xx) mindfulness (but not mindfulness-SR) showed more deliberative if-then plans (although non-significant). Deliberative if-then plans included "I would…", "I might…", "I could…" kind of sentences in the then-part of the plan. Interpreting this last result with caution, we might suggest that it could be in line with mindfulness interventions that do not invite the individual to act but to contemplate. This is actually part of the philosophy which mindfulness comes from (Grabovac, Lau, & Brandilyn, 2011). We should then consider the possibility that mindfulness could impair the use of implementation intentions to self-regulate and therefore impair as well actual behavior. Although there is evidence that mindfulness restores self-regulatory resources in self-regulation (Friese, Messner, & Schaffner, 2012), no evidence has been found (that we are aware of) regarding its possible effects on the effectiveness of implementation intentions.

Therefore, considering our results in this study, in our next study we wanted to test if mindfulness could actually impair performance when participants had formed an implementation intention to self-regulate. In addition, we were interested in testing the differential effects of different levels of construal. Particularly if abstract (versus concrete) mindset could impair performance, in line with results found in previous research (Wieber, et al., 2014).

## STUDY 6: ABSTRACT MINDSET DIMINISHES BENEFICIAL EFFECTS OF IMPLEMENTATION INTENTIONS ON PERFORMANCE

In this experiment, we wanted to test if different mindsets could benefit or interfere the implementation of an ongoing if-then plan to stay calm and concentrated while moving towards the conflicting goals of helping colleagues (extra-role performance) and retaining information to perform well in an individual evaluation (intra-role performance). Construal level theory posits that high and low levels of construal could have differential effects on self-regulation (Trope & Liberman, 2010). In particular, research suggested that high level of construal benefits self-regulation (Fujita et al., 2009; Trope & Liberman, 2010). However, if individuals use an additional self-regulatory strategy as implementation intentions, will high level construal still benefit self-regulation process? We suggest that would not be the case, because implementation intentions efficacy apparently rest on automatic processes (bottom-up processes) (e.g., Gollwitzer, 2012; Webb & Sheeran, 2008) and self-regulating under a high level of construal is an effortful self-regulation strategy (top-down processes). In this sense, we expected participants under an abstract condition (high-level construal) reduce their performance as compared to concrete (low-level construal) condition. In addition, we wanted to resolve the question that arose from our previous study regarding a possible detrimental effect of mindfulness on performance. Nevertheless, as mindfulness has also shown protective effects from ego-depletion in prior research (Friese, et al., 2012), we expected in the first place no impairment from participants under mindfulness condition.

## METHOD

### PARTICIPANTS AND DESIGN

One hundred and fifty-four undergraduate students from Autonoma University of Madrid, 118 female (76.62%), 36 male (23.37%), mean age 19.49 (*SD* = 1.425), participated in the experiment in exchange of one hour course credit. The participants were randomly assigned to one of the five conditions: abstract mindset (*N* = 39), concrete mindset (*N* = 38), mindfulness mindset (*N* = 38), and control (*N* = 39).

### MATERIALS AND PROCEDURE

Participants arrived in groups of 7 to 8 people. Then, all participants were randomly assigned to the different conditions (abstract, concrete, mindfulness and control mindset). After that, participants took seats in individual cubicles equipped with a desktop computer. Once seated, participants should simply follow the instructions appearing on the computer screens. The first information presented on the computer screen explained that the study was on the interrelation between thought exercises and individual and group score. Secondly, they all were requested to answer demographic questions. Next, all participants were told that they were going to do different exercises in the following screens. After that, participants in each condition did one of the priming tasks: abstract, concrete, mindfulness or control respectively for each condition. As in Study 5, the priming tasks in abstract and concrete conditions followed the instructions of the validated procedure by Freitas, Gollwitzer, & Trope (2004). The mindfulness and control condition followed the instructions of the Study 5 mindfulness and control conditions. As a first experimental check, participants in all conditions had to write down some words or sentences following the instructions of what they had read and listened to.

Right after the priming task, all participants had to perform the workplace conflict paradigm created in Study 1(see above). Thus, the procedure was mostly the same as in the Study 1 with one addition: after participants had been informed of the two task goals they had to accomplish, participants in the four experimental conditions were given the same implementation intention instruction on how to deal with their affective responses. The implementation intention instruction was the following: "If *a participant interrupts me, then I stay calm and concentrated*." Thereafter, participants watched a fragment of the movie *Killer Stress* by Robert Sapolsky (2008), with six chat interruptions by presumed other members of the group, just as in the Study 3 (to avoid ceiling effect). They again answered the SAM scale after each interruption. Once the movie had ended, participants completed the same control questions, short version of the Perceived Stress Scale and the PANAS questionnaire as used in the Studies 2 and 3. In addition, participants answered the Kentucky Inventory of Mindfulness Skills (KIMS; Baer, Smith & Allen, 2004) used as control of trait mindfulness in Study 4. As we were testing the effect of mindfulness mindset, we wanted to check for trait mindfulness as well.

Similarly as in Studies 2 and 3, we measure in-role performance (memory performance) and extra-role performance (helping behavior). For the recall test we asked participants to answer 10 items related to the movie they had just watched. For the helping behavior the number of actual answers given to their colleagues' questions was saved by the computer program. Finally, all participants were debriefed, thanked, and given credit for participation.

## RESULTS AND DISCUSSION

### MANIPULATION CHECKS.

### INSTRUCTIONS PROCESSING.

We tested whether participants had processed the priming and implementation instructions correctly. Again, we were especially careful in selecting only participants who had described the instructions with complete accuracy; one hundred and thirty-nine of the one hundred and fifty-four original participants did so. Thus, for the statistical analyses described below the number of participants in the control, abstract, concrete, and mindfulness conditions was 35, 37, 35, and 32, respectively.

### AFFECTIVE RESPONSE.

To exclude the possibility that there were prior general mood differences between the different self-regulation conditions, we conducted a one way ANOVA for PANAS (PANAS; Watson et al., 1988) pre interruptions measure as the dependent variable. No mood differences were found as a function of condition, $F$ (3, 135) = .701, *ns*. To test if there was a time effect, we entered the PANAS score as dependent variable into a repeated measures ANOVA. Interestingly, we found significant main effects for time (Pillai's trace $F$ (1, 135) = 10.745, .001) and no significant effects for the interaction time x condition (Pillai's trace $F$ (3, 135) = 1.591, *ns*). However, planned contrast revealed significant differences between abstract and concrete conditions ($t$ = 2.525, $p$ = .014) and close to significant results between control and abstract conditions ($t$ = 1.878, $p$ = .064).

In addition, we also applied the SAM scale. Regarding arousal and dominance no significant differences were found between pre and post measures. As in Study1, results from the whole sample showed that participants felt significantly less pleasant after the interruptions ($M$ = 2.43, $SD$ = .63) than before the interruptions ($M$ = 2.22, $SD$ = .78), $t$ = 3.33, p = .001. Repeated measures ANOVAs from pre- to post pleasure

measures were also conducted. Similarly, we found significant main effects for time (Pillai's trace $F$ (1, 135) = 11.444, $p$ = .001) and no significant effects for the interaction time x condition (Pillai's trace $F$ (3, 135) = 2.227, *ns*). Apparently, in all conditions participants felt less pleasant after the interruptions. However, planned contrast revealed that participants in the abstract condition showed a higher increment of displeasure than concrete condition ($t$ = 2.099, $p$ =.039).

### KIMS.

As a control measure, we tested the level of trait mindfulness as measure by the KIMS in all participants. No significant differences were found among conditions (F (3,135) = .597, ns).

### PERCEIVED STRESS SCALE.

We conducted omnibus ANOVAs to test whether perceived stress was different among conditions as well as planned contrast to test for detailed hypothesis. Besides the global score of PSS, we divided the scale into three type of items: items related to the emotions felt (e.g. "Have you been upset because of the interruptions?"); items related to the control they felt (e.g., "Have you felt confident about your ability to handle the situation?"); and items related to being overloaded by the situation ("Have you felt difficulties were piling up so high that you could not overcome them?"). Results from the omnibus ANOVA revealed almost significant differences regarding global measure of perceived stress ($F$(3,135) = 2.46, $p$ =.065), and being overloaded ($F$(3,135) = 2.54, $p$ =.059). Specific planned contrasts revealed significant differences between abstract and the other conditions regarding the global measure of PSS ($p$ =.008), control ($p$ =.043), emotions felt ($p$ =.030), and being overloaded ($p$ =.008). Participants in abstract

condition felt more global perceived stress in all three differentiated aspect of: control, emotions felt and feelings of being overloaded.

### COMMITMENT.

We wanted to test if there were differences in commitment to the self-regulation goals, emotional control or perceived difficulty. For that purpose, we compared the four groups on these variables. Participants in all condition did not differ with respect to how committed they felt to the self-regulation goals, $F$ (3, 135) = .942, *ns*. In addition, planned contrast of implementation intentions condition compared to the rest of conditions wasn't significant either.

### ATTEMPTS TO CONTROL ONE'S NEGATIVE FEELINGS.

No differences were found regarding how much participants tried to control their negative feelings, $F$ (3, 135) = 1.10, *ns*. Similarly, planned contrast comparison of abstract condition compared to the rest of conditions wasn't significant either.

### PERCEIVED DIFFICULTY OF STAYING CALM AND CONCENTRATED.

Similarly, no differences between conditions were found regarding the perceived difficulty of staying calm and concentrated, $F$ (3, 135) = .853, *ns.* Planned contrast comparison of implementation intentions condition compared to the rest of conditions was conducted as well, and it wasn't significant either.

## DEPENDENT VARIABLES: IN-ROLE (MEMORY PERFORMANCE) AND EXTRA-ROLE (HELPING BEHAVIOR) PERFORMANCE.

As in the previous studies using the workplace conflict paradigm, the main dependent measures were the number of correct answers participants recalled on the memory test and participants' helping behavior.

A one-way analysis of variance (ANOVA) on the correct answers in the recall test showed significant variation among the four conditions, $F$ (3, 135) = 3.509, $p$ = .017. Planned contrast revealed particularly detrimental effects of abstract condition in comparison with all the rest (see Figure 14). We found significant effects for abstract condition with respect to control ($p$ = .014), concrete ($p$ = .005) and mindfulness ($p$ = .016) conditions. Additional analyses were conducted to check whether mindfulness trait (as measured by the KIMS) could be affecting memory performance. Correlation between participants' scores on KIMS and memory performance was significant ($r$ =.231, $p$ = .006). Thus, we introduced KIMS global score as a covariable in the one-way ANOVA. The results were even more significant, $F$ (3, 134) = 5.115, $p$ = .001.

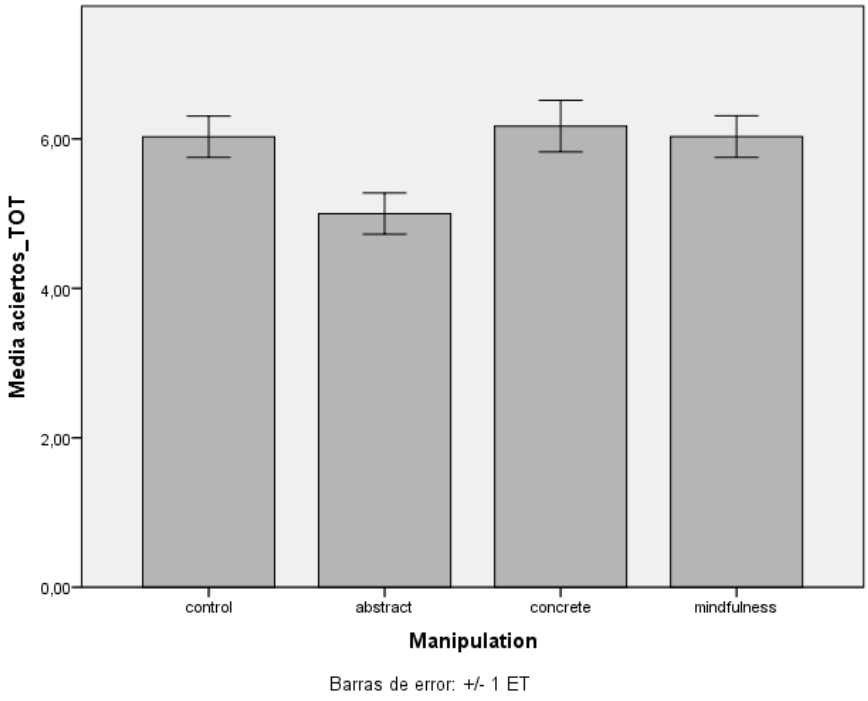



Figure 14.- Means of number of correct answers by condition

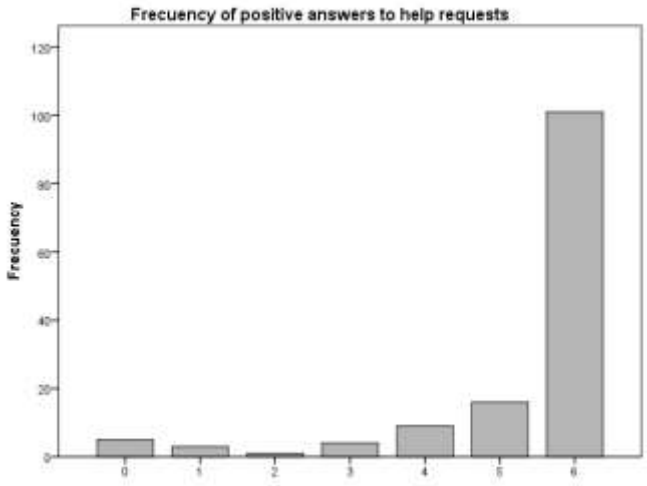



Figure 15.- Frecuency of positive answers to fake help request

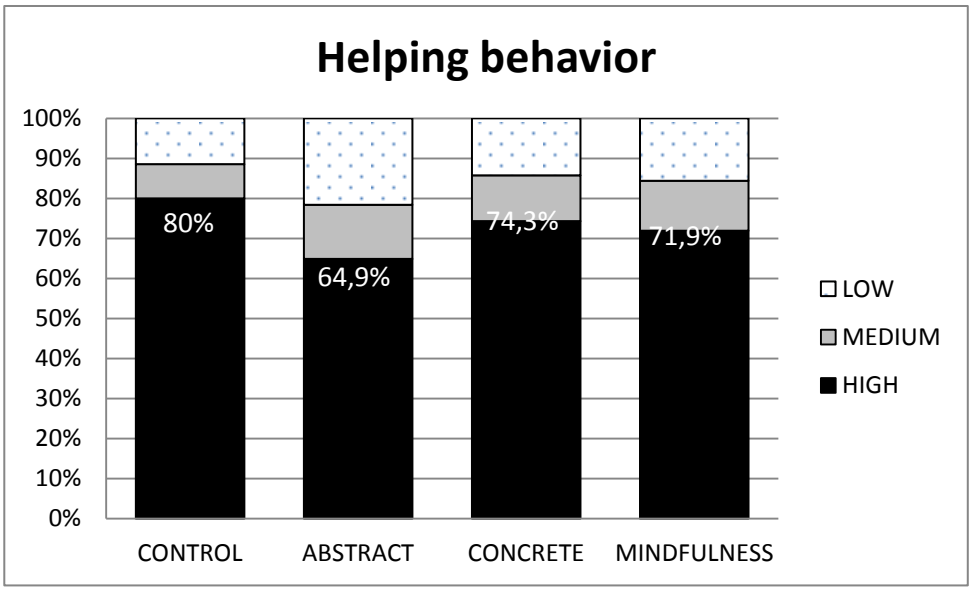



Figure 16.- Percentage of frequency of helping behavior by condition

Regarding helping behavior performance, the omnibus ANOVA as well as the planned contrast showed no significant differences among the groups. All conditions showed helping behavior means >5 (out of 6 possible answer requests), thus this non-

significant variation between the groups might be due to a ceiling effect again; participants in this study tend to help their colleagues (see Figure 15). Nevertheless, if we consider the following three categories of helping behavior (see Figure 16): high (positive answer to all helping request), medium (positive answer to five helping request), and low (less than five positive answers to helping request) we found a lower percentage of high helping behavior in the abstract condition (not statistical significant different though).

Our results showed that a high level of construal (abstract mindset) impaired the efficacy of implementation intention on in- role (memory) performance. No significant results were found for extra-role (helping behavior) performance; however the graphic results showed a similar tendency. Moreover, participants under abstract mindset condition felt the situation as more uncontrollable, overloaded and unpleasant than participants in the other conditions. Results supported our hypothesis that high level of construal impairs self-regulation by implementation intentions. Apparently, high levels of construal and if-then plans are not a good match. These results are in line with recent research that also found that asking "why" to implementation intention participants had detrimental effects on behavior (Wieber, et al., 2014). Interestingly we did not found that mindfulness had detrimental effects on performance. In fact, mindfulness, concrete and control condition showed similar results at the action phase, suggesting that neither mindfulness mindset, nor concrete mindset benefited or impair the efficacy of implementation intention in the workplace conflict.

In our next study we wanted to move further and to test not only for main effect of mindfulness and levels of construal on self-regulation by implementation intentions, but also to test for possible interaction effects. We considered important to conduct a

more complex study, as in real life, mindfulness as well as implementation intention interventions are not isolated but embed into more instructions, speeches, and so on, that can be construed at a different level of construal (Trope & Liberman, 2010). In addition, it is unclear what kind of construal mindfulness instructions represent, as at the same time there is an abstract speech (i.e, abstracting the self-presence) and a focus on the present moment and details of the situation (i.e, noticing breath, position, etc.).Therefore, in our next study we tested the effects of the combination of mindfulness, different construal levels, and implementation intentions.

## STUDY 7: INTERACTION EFFECTS OF MINDFULNESS, CONSTRUAL LEVEL AND IMPLEMENTATION INTENTIONS ON PERFORMANCE

Our prior results showed that a high level of construal (abstract mindset) impaired the efficacy of implementation intentions on behavior at the workplace conflict. In this last experiment we extended our prior study by using a more complex design 2 (high/low construal level) x 2 (mindfulness/no mindfulness) x 2 (implementation intentions/goal intentions) to look for possible interactions effects among implementation/goals, mindfulness, and level of construal. Participants were again confronted with the workplace conflict situation. This time, they were first primed with specific high or low construal level mindsets. Participants did not engage actively in a priming task (asking "why" or "how"), but they listened to a passage regarding the why (high-level construal) or how (low-level construal) of the study in which they were participating. After that mindfulness (or not mindfulness) mindset was elicited. Finally, they were given an if-then plan (or a mere goal intention) instruction and they started the workplace conflict task.

Considering research and theory on implementation intentions (e.g., Gollwitzer 1999, 2012), the principles of CLT (Trope & Liberman, 2010), and our prior results; we

expected to find better performance for participants under low-CL when they have a goal furnished with an if-then plan, whereas we expected the opposite when participants just have a goal intention and they are under low-CL (Wieber, et al., 2014). We expected as well some kind of interaction effect regarding mindfulness and the other variables. Although during the action phase mindfulness has shown similar results to low-CL condition (Study 6), we do know that mindfulness presents additional effects as compare to low-CL because during pre-actional phase (Study 5) it was shown so. In addition, as it was already pointed out, mindfulness showed apparently both low and high level of construal in its instructions. Thus, the study of their combined effects turned out to be relevant as well.

## *METHOD*

### PARTICIPANTS AND DESIGN

One hundred and ninety-four undergraduate students from Autonoma University of Madrid, 140 female (72.16%), 44 male (27.83%), mean age 19.25 (*SD* = 1.356), participated in the experiment in exchange of one hour course credit. The experiment was a 2 x 2 x 2 design: High / Low construal level (CL) x Mindfulness / non-mindfulness x Implementation intention/ Goal intention. The participants were randomly assigned to one of the eight resulting conditions (see Table xxx): 1) High CL - Mindfulness-Implementation, 2) High CL -Mindfulness- Goal, 3) High CL -Not Mindfulness- Implementation, 4) High CL -Not Mindfulness- Goal, 5) Low CL - Mindfulness- Implementation, 6) Low CL - Mindfulness- Goal , 7) Low CL - Not Mindfulness- Implementation, and 8) Low CL - Not Mindfulness- Goal.

Table 5.- Number of participants in each condition

| N = 194 | High CL | | Low CL | |
|---|---|---|---|---|
| | Implementation | Goal | Implementation | Goal |
| Mindfulness | 23 | 24 | 27 | 23 |
| No mindfulness | 25 | 24 | 25 | 21 |

## MATERIALS AND PROCEDURE

Participants came into the lab in alphabetically ordered groups of 7 to 8 people, each group at a time was randomly assigned to either a high CL condition or a low CL condition. Then, we elicited the high and low CL condition by making participants to listen about the research they were about to do throughout a passage formulated in a different level of construal. We wanted to include this manipulation as a part of the research[2] (versus as a priming in a non-related task) to make it more similar to interventions where instructions sometimes are formulated without considering these aspects. Participants in high CL conditions listened to the following passage:

"*This study is ultimately a step to study the process of emotional regulation and self-regulation toward our goals and life values. We would like you to see its importance with your personal example. Take a moment, without talking, only for you, and think about what you care about the most. Maybe it's a person, several people or a project. Many important things may have appeared in your mind. Keep in mind the one that came first. Keep that image or idea. Realize that properly dealing with your emotions and self-regulation of your behavior surely improves some important aspect in*

[2] Examples of prior research when abstract and concrete manipulations were part of the ongoing task are for instance: Aguilar, Brussino, & Fernandez-Dols (2013)

*relation to what matters the most to you. It probably makes you get closer to it. That is the reason why we conduct this study. Now you can begin the study*."

Whereas participants in low CL conditions listened to a passage about very specific information related to what they were about to do: *"To do this study, once seated in the booths, put on headphones please. You can adjust the volume once you start the study by using the control situated in the headphone wire. You won´t need to use pencil or paper, simply use the mouse and keyboard. Sometimes to move from one screen to the next you will have to click a "next" bottom while sometimes you will have to press the ENTER key. If you want to correct use the backspace key, you can edit while you are writing but once you pass to the next screen you can´t go back. Please, don´t go out of the cabin until the screen notifies you that the study is over. You can now start the study."*

After that, participants took seats in individual cubicles equipped with a desktop computer and were randomly assigned to one of the four different conditions (Mindfulness/not mindfulness x Implementation/Goal intention). Once seated, participants should simply follow the instructions appearing on the computer screens. The first information presented on the computer screen explained that the study was on the interrelation between thought exercises and individual and group score. Secondly, they all were requested to answer demographic questions. Next, all participants were told that they were going to do different exercises in the following screens. After that, participants in each condition did one of the priming tasks: mindfulness or control respectively for each condition. The mindfulness and control priming conditions followed the instructions of the Study 5 mindfulness and control conditions respectively. As described before, in the mindfulness condition participants had to

observe and to take notice of their breath, position, and themselves being present anywhere they are despite the different roles they perform in their life. The control condition consisted in reading and listening to a small text regarding physical exercise and health, and thinking about words, ideas or elements related to the text. Similarly to prior studies, as part of the experimental check, participants in all conditions had to write down some words or sentences following the instructions of what they had read and listened to.

Right after this priming task, all participants had to perform the workplace dilemma task created in Study 1(see above). The procedure was similar as in the Study 2 and 3 for the implementation conditions: after participants had been informed of the two task goals they had to accomplish, participants in the implementation conditions were given the following implementation intention instruction on how to deal with their affective responses: "If *a participant interrupts me*, then I *stay calm and concentrated*." However, participants in the not implementation condition received a mere goal instruction to perform the task: "*I will stay calm and concentrated*" (versus no further instructions of study 2 and 3 control conditions). Participants were asked to write down the instructions they had received as an additional experimental check.

Thereafter, participants watched a fragment of the movie *Killer Stress* by Robert Sapolsky (2008), with six chat interruptions by presumed other members of the group. They again answered the SAM scale after each interruption. Once the movie had ended, participants completed the following control questions: "Did you close your eyes while the movie was presented?", and "Had you seen this movie previously?" both with "Yes" or "No" answers; and "To what extent do you know your colleagues?" with marking a 7-point scale reaching from 1 (not at all) to 7 (very). And questions related to task goal

commitment ("To what extent did you feel committed to the task goals?", "To what extent did you try to control your emotions?"). We also assessed the perceived difficulty of controlling emotions ("How difficult was it to stay calm and concentrate?").

Then, we measure memory performance and helping behavior. For the recall test we asked participants to answer 6 items related to the movie they had just watched (shorter version than in previous studies due to time limit[3]). For the helping behavior variable the number of answers given to their colleagues when they asked for help was saved by the computer program. Finally, all participants were debriefed, thanked, and given credit for participation.

## RESULTS AND DISCUSSION

### MANIPULATION CHECKS.

#### INSTRUCTIONS PROCESSING.

We tested whether participants had processed the instructions of the different conditions correctly. Only participants that answered accordingly to their instructions condition were included in the analysis (see Table 6).

Table 6.- Final number of participants in each condition

| | High CL | | Low CL | |
|---|---|---|---|---|
| | Implementation | Goal | Implementation | Goal |
| Mindfulness | 16 | 20 | 17 | 23 |
| No mindfulness | 21 | 22 | 19 | 19 |

[3] In order to decide which questions remained we considered the correct answers rate from previous studies. Thus, we choose the questions with the following pattern: 20% < correct answers < 80%.

### EXPERIMENT DURATION TIME.

An unexpected differential effect was found regarding the experiment duration time and the level of construal. The whole study (workplace conflict situation as well as questionnaires and socio-demographic questions) was designed to take around 30 minutes. Interestingly, the time participants spent to execute the experiment was much higher under High CL than under Low CL. We did not recorded exact executions times (as it was not the purpose of our study) however, we found approximately 15 minutes difference between High and Low CL conditions (no matter which Implementation or Mindfulness condition they had assigned). Whereas participants under Low CL spent the approximately 30 minutes (+/- 5 minutes considering individual differences), participants under High CL spent around 45 minutes[4]. We thought it was not appropriate to conduct further analysis with this vague data, but it was important to mention the particularity.

### AFFECTIVE RESPONSE.

We checked if there were prior differences in pleasure and arousal (SAM) among conditions. No differences were found either for pleasure ($F$ (7, 149) = .229, *ns*) or arousal ($F$ (7, 149) = 1.43, *ns*). In order to test if the workplace conflict was unpleasant for participants, we checked if pleasure was higher after the interruptions than before. The workplace conflict was unpleasant, as participants reported lower levels of pleasure after it ($t$ = -3.87, $p$ =.000). Participants also reported they felt more arousal after the workplace conflict ($t$ = 2.24, $p$ =.026). Repeated measures ANOVA from pre to post arousal measures revealed significant effects for time (Pillai's trace $F$

[4] We did not record participants' execution time. However, as we had strictly scheduled the times when participants had the appointment in the lab, and groups entered sequentially ordered, we had notes of all the delays and under what conditions they took place.

(1, 149) = 5.078, $p$ = .026). However, no significant effects for time x condition were found. Regarding pleasure, repeated measures ANOVA from pre to post measures revealed significant effects for time (Pillai's trace $F$ (7, 149) = 15.637, $p$ = .000) but no effects for time x condition.

### CONTROL QUESTIONS.

No differences were found among conditions regarding *commitment* to the self-regulation goals, the *attempts control one´s negative feelings,* the *perceived difficulty of staying calm and concentrated*, and the *extent to which participants known their colleagues* either.

## DEPENDENT VARIABLES.

### MEMORY PERFORMANCE.

Analysis of memory performance in a 2 (CL) x 2 (Implementation) x 2 (Mindfulness) ANOVA revealed significant effects of the global model ($F$ (7, 149) = 3.156, $p$ = .004). It was found a main effect of mindfulness ($F$ (1, 149) = 6.539, $p$ = .012), as well as a two-way interaction CL x mindfulness ($F$ (1, 149) = 11.850, $p$ = .001). No more significant effects were found (Table 8). Means and significant pairwise comparison are presented in Table 7. Apparently participants under mindfulness instructions performed better than participants under non-mindfulness instructions when they were in a high CL condition and regardless of being in goal intention or implementation intention conditions (Figure 17). In Addition, participants with non-mindfulness and goal instructions under a high CL performed worse than participants with non-mindfulness and goal instructions under a low CL; whereas participants with mindfulness-goal instructions under a low CL performed better than participants with

mindfulness-goal instructions under a high CL. No differences were found among low CL conditions.

Table 7.- Number of correct answers by condition - means

| | GOAL | | IF-THEN | |
|---|---|---|---|---|
| | Low CL | High CL | Low CL | High CL |
| No mindfulness | 3,26 [a] | 2,54 [a,e] | 2,78 | 2,57 [c] |
| MINDFULNESS | 2,69 [b,d] | 3,45 [b,d] | 3,05 | 3,68 [c,e] |

[a, b, c, d & e] significant differences p = .002, .019, .012, & .012, .001 respectively

Table 8- ANOVA 2x2x2 Memory performance

Dependent variable: Number of correct answers

| Origen | Suma de cuadrados tipo III | gl | Media cuadrática | F | Sig. | Eta al cuadrado parcial | Parámetro de no centralidad Parámetro | Potencia observada [b] |
|---|---|---|---|---|---|---|---|---|
| Adjusted Model | 24,260[a] | 7 | 3,466 | 3,156 | ,004 | ,129 | 22,090 | ,942 |
| Intersección | 1401,359 | 1 | 1401,359 | 1276,004 | ,000 | ,895 | 1276,004 | 1,000 |
| CL | ,484 | 1 | ,484 | ,441 | ,508 | ,003 | ,441 | ,101 |
| Implementation | ,057 | 1 | ,057 | ,052 | ,821 | ,000 | ,052 | ,056 |
| Mindfulness | 7,181 | 1 | 7,181 | 6,539 | ,012 | ,042 | 6,539 | ,719 |
| CL * Implementation | ,339 | 1 | ,339 | ,308 | ,580 | ,002 | ,308 | ,086 |
| CL* Mindfulness | 13,014 | 1 | 13,014 | 11,850 | ,001 | ,074 | 11,850 | ,928 |
| Implementation * Mindfulness | 2,660 | 1 | 2,660 | 2,422 | ,122 | ,016 | 2,422 | ,340 |
| CL* Implementation * Mindfulness | ,947 | 1 | ,947 | ,862 | ,355 | ,006 | ,862 | ,152 |
| Error | 163,638 | 149 | 1,098 | | | | | |
| Total | 1577,000 | 157 | | | | | | |
| Total corregida | 187,898 | 156 | | | | | | |

a. $R^2$ = ,129 ($R^2$ corregida = ,088)

b. α= ,05

We analyzed separately the data from Low CL condition (Table 8) and found a non-significant tendency of the two-way interaction implementation x mindfulness.

Table 9.- ANOVA 2x2 Memory performance – LOW CL

**Pruebas de los efectos inter-sujetos**

Variable dependiente: Memory performance- Correct answers

| Origen | Suma de cuadrados tipo III | gl | Media cuadrática | F | Sig. | Eta al cuadrado parcial | Parámetro de no centralidad Parámetro | Potencia observada[b] |
|---|---|---|---|---|---|---|---|---|
| Modelo corregido | 4,027[a] | 3 | 1,342 | 1,296 | ,282 | ,050 | 3,887 | ,332 |
| Intersección | 671,635 | 1 | 671,635 | 648,390 | ,000 | ,898 | 648,390 | 1,000 |
| IF_Then | ,059 | 1 | ,059 | ,057 | ,812 | ,001 | ,057 | ,056 |
| Mindfulness | ,428 | 1 | ,428 | ,413 | ,522 | ,006 | ,413 | ,097 |
| IF_Then * Mindfulness | 3,374 | 1 | 3,374 | 3,257 | ,075 | ,042 | 3,257 | ,429 |
| Error | 76,653 | 74 | 1,036 | | | | | |
| Total | 753,000 | 78 | | | | | | |
| Total corregida | 80,679 | 77 | | | | | | |

a. R cuadrado = ,050 (R cuadrado corregida = ,011)

b. Calculado con alfa = ,05

When analyzing High CL data separately, we found the mindfulness main effect much more significant (see Table 9) and a significant global model accordingly. None effects of implementation and goal intentions.

**Pruebas de los efectos inter-sujetos**

Variable dependiente: Acierto_sin_ayuda

| Origen | Suma de cuadrados tipo III | gl | Media cuadrática | F | Sig. | Eta al cuadrado parcial | Parámetro de no centralidad Parámetro | Potencia observada[b] |
|---|---|---|---|---|---|---|---|---|
| Modelo corregido | 20,002[a] | 3 | 6,667 | 5,749 | ,001 | ,187 | 17,246 | ,939 |
| Intersección | 730,492 | 1 | 730,492 | 629,844 | ,000 | ,894 | 629,844 | 1,000 |
| IF_Then | ,338 | 1 | ,338 | ,291 | ,591 | ,004 | ,291 | ,083 |
| Mindfulness | 19,861 | 1 | 19,861 | 17,125 | ,000 | ,186 | 17,125 | ,983 |
| IF_Then * Mindfulness | ,218 | 1 | ,218 | ,188 | ,666 | ,002 | ,188 | ,071 |
| Error | 86,985 | 75 | 1,160 | | | | | |
| Total | 824,000 | 79 | | | | | | |
| Total corregida | 106,987 | 78 | | | | | | |

a. R cuadrado = ,187 (R cuadrado corregida = ,154)

b. Calculado con alfa = ,05

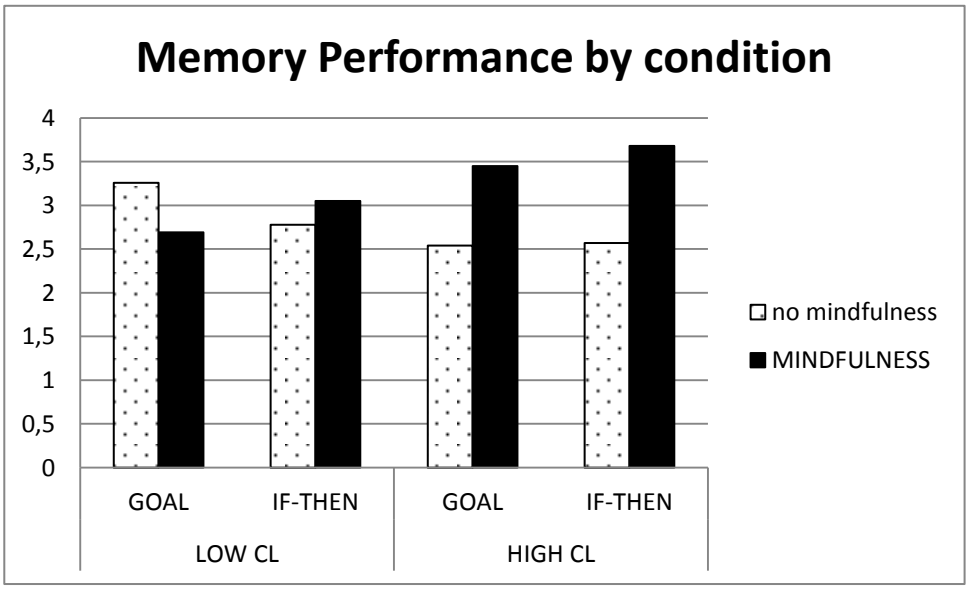



Figure 17.- Means of number of correct answers by condition

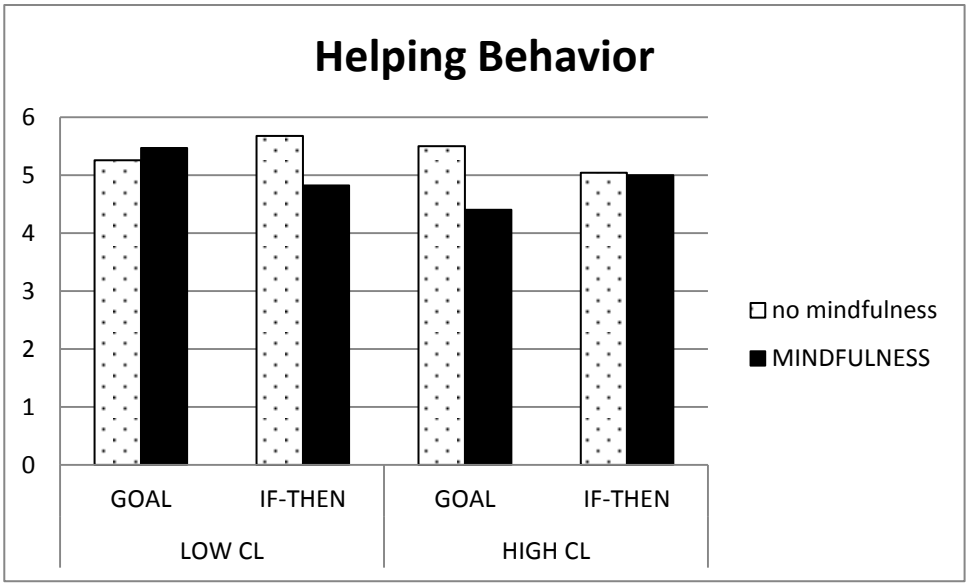



Figure 18.- Means of positive answers to help requests by condition

*Helping behavior.*

As shown in Figure 19, as a general rule participants helped a lot as revealed by the number of answers all participants gave to fake colleagues (global mean is 5.16, SD= 1.28; out of 6 possible positive answers to help requests). Considering the eight different conditionsonly goal-mindfulness-high CL condition, and implementation-mindfulness-low CL condition did not reach 5 answers mean (see Table xxx).

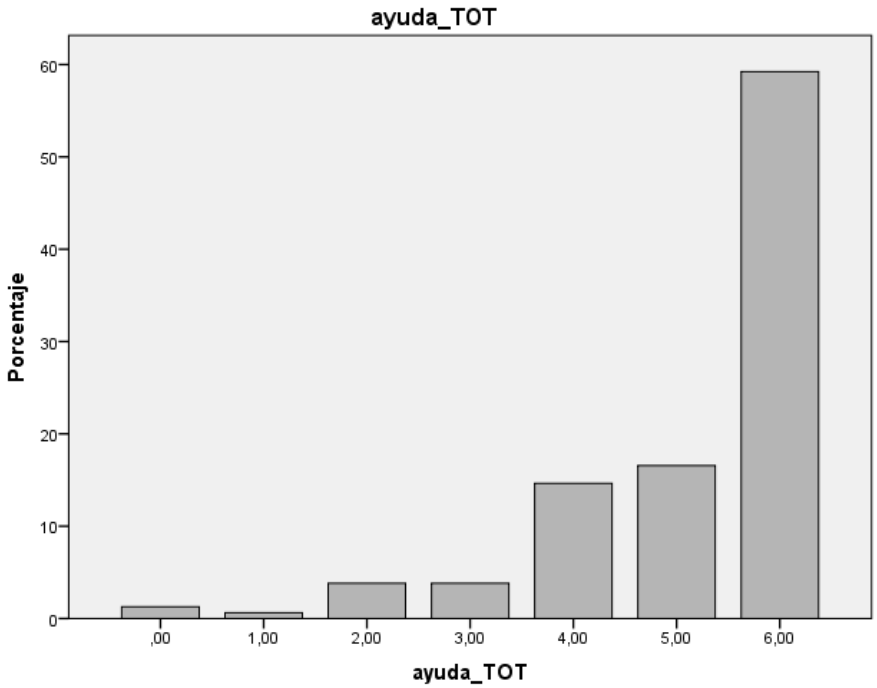



Figure 19- Percentage of number of positive answers to help request

The data analysis in a 2 (Value) x 2 (Implementation) x 2 (Mindfulness) ANOVA revealed significant effects of the global model ($F$ (7, 149) = 2.250, $p$ = .033). It was found a main effect of mindfulness ($F$ (1, 149) = 5.015, $p$ = .027), as well as a three-way interaction value x implementation x mindfulness ($F$ (1, 149) = 7.063, $p$ = .009). No more significant effects were found (Table 20). Means and significant pairwise comparison are presented in Table 21. Besides, the model remained significant even controlling for the extent to which participants known their colleagues ($F$ (8, 148) = 2.172, $p$ = .033), as well as mindfulness effect ($p$ = .021), and the three-way interaction ($p$ = .008).

Table 11- ANOVA 2x2x2 Helping Behavior

| Dependent variable: Number of answers to colleagues (helping behavior) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Origen | Suma de cuadrados tipo III | gl | Media cuadrática | F | Sig. | Eta al cuadrado parcial | Parámetro de no centralidad Parámetro | Potencia observada[b] |
| Adjusted Model | 24,443[a] | 7 | 3,492 | 2,250 | ,033 | ,096 | 15,749 | ,821 |
| Intersección | 4108,003 | 1 | 4108,003 | 2646,868 | ,000 | ,947 | 2646,868 | 1,000 |
| CL | 4,100 | 1 | 4,100 | 2,642 | ,106 | ,017 | 2,642 | ,365 |
| Implementation | ,018 | 1 | ,018 | ,012 | ,915 | ,000 | ,012 | ,051 |
| Mindfulness | 7,783 | 1 | 7,783 | 5,015 | ,027 | ,033 | 5,015 | ,605 |
| CL * Implementation | ,352 | 1 | ,352 | ,227 | ,635 | ,002 | ,227 | ,076 |
| CL * Mindfulness | ,610 | 1 | ,610 | ,393 | ,532 | ,003 | ,393 | ,096 |
| Implementation * Mindfulness | ,001 | 1 | ,001 | ,001 | ,977 | ,000 | ,001 | ,050 |
| CL * Implementation * Mindfulness | 10,963 | 1 | 10,963 | 7,063 | ,009 | ,045 | 7,063 | ,752 |
| Error | 231,252 | 149 | 1,552 | | | | | |
| Total | 4445,000 | 157 | | | | | | |
| Total corregida | 255,694 | 156 | | | | | | |

a. $R^2$ = ,096 ($R^2$ corregida = ,053)
b. α= ,05

As shown in Table 20 and Figure 18, Among those participants in the mindfulness condition, high CL condition was related to less helping behavior than low CL condition when participants did not have a implementation intention furnishing the goal to stay calm and concentrated (*p*=.021). However, this effect was not found when participants had an implementation intention. Participants who did not furnished their goal with implementation intentions showed lower helping behavior when they had an additional mindfulness instruction than participants without mindfulness instructions, but this effect appeared only under high CL condition (*p*=.017). Finally, in low CL condition among those participants with implementation intention instructions, additional mindfulness instructions apparently reduced helping behavior in comparison with no additional mindfulness instructions (*p*=.006).

**Table 12.- Number of answers to colleagues – means**

| | GOAL | | IF-THEN | |
|---|---|---|---|---|
| | No value | VALUE | No value | VALUE |
| No mindfulness | 5.26 | 5.50[a] | 5.68[b] | 5.04 |
| MINDFULNESS | 5.47[c] | 4.40[a,c] | 4.82[b] | 5.00 |

[a, b, c] significant differences p = .017, .006, & .021 respectively

Similarly to memory performance, we conducted separately analysis for helping behavior as well. As shown in Table 11, no significant effects were found regarding the model for low level of construal, although a tendency regarding the model is observed, because there is a significant interaction implementation x mindfulness. This tendency points out the significant differences found between the means (see Figure 20 and Table 12) of implementation intention conditions with and without mindfulness. Regarding high level of construal, separately analyses were not significant.

Table 13.- ANOVA 2X2 Helping Behavior Low-CL

Variable dependiente: HELPING BEHAVIOR

| Origen | Suma de cuadrados tipo III | gl | Media cuadrática | F | Sig. | Eta al cuadrado parcial | Parámetro de no centralidad Parámetro | Potencia observada [b] |
|---|---|---|---|---|---|---|---|---|
| Modelo corregido | 7,334[a] | 3 | 2,445 | 2,261 | ,088 | ,084 | 6,784 | ,550 |
| Intersección | 2175,352 | 1 | 2175,352 | 2012,221 | ,000 | ,965 | 2012,221 | 1,000 |
| IF_Then | ,263 | 1 | ,263 | ,243 | ,623 | ,003 | ,243 | ,078 |
| Mindfulness | 2,008 | 1 | 2,008 | 1,857 | ,177 | ,024 | 1,857 | ,270 |
| IF_Then * Mindfulness | 5,576 | 1 | 5,576 | 5,158 | ,026 | ,065 | 5,158 | ,611 |
| Error | 79,999 | 74 | 1,081 | | | | | |
| Total | 2306,000 | 78 | | | | | | |
| Total corregida | 87,333 | 77 | | | | | | |

a. R cuadrado = ,084 (R cuadrado corregida = ,047)

b. Calculado con alfa = ,05

Table 14.- ANOVA 2X2 Helping Behavior HIGH-CL

Variable dependiente: HELPING BEHAVIOR

| Origen | Suma de cuadrados tipo III | gl | Media cuadrática | F | Sig. | Eta al cuadrado parcial | Parámetro de no centralidad Parámetro | Potencia observada[b] |
|---|---|---|---|---|---|---|---|---|
| Modelo corregido | 12,748[a] | 3 | 4,249 | 2,107 | ,106 | ,078 | 6,321 | ,518 |
| Intersección | 1935,596 | 1 | 1935,596 | 959,785 | ,000 | ,928 | 959,785 | 1,000 |
| IF_Then | ,106 | 1 | ,106 | ,053 | ,819 | ,001 | ,053 | ,056 |
| Mindfulness | 6,407 | 1 | 6,407 | 3,177 | ,079 | ,041 | 3,177 | ,421 |
| IF_Then * Mindfulness | 5,387 | 1 | 5,387 | 2,671 | ,106 | ,034 | 2,671 | ,365 |
| Error | 151,252 | 75 | 2,017 | | | | | |
| Total | 2139,000 | 79 | | | | | | |
| Total corregida | 164,000 | 78 | | | | | | |

a. R cuadrado = ,078 (R cuadrado corregida = ,041)

b. Calculado con alfa = ,05

We did not find the expected results regarding our first hypothesis. We expected to find an interaction effect CL x goal/implementation intentions (Wieber, et al., 2014). Concretely we expected better performance for participants under low-CL when they have a goal furnished with an if-then plan, whereas we expected the opposite when participants just have a goal intention and they are under low-CL. In addition, we expected that high CL impaired the efficacy of self-regulation via implementation intentions but enhanced the efficacy of self-regulation via goal intentions (Wieber, et al., 2014). However we did not find either the interaction effect, or an implementation/goal intention main effect. There was no difference between conditions under low-CL, and under high-CL the differences were determined by mindfulness main effect. As goal intentions and implementation intentions showed similar results we suggest that perhaps a goal intention to stay calm and concentrated at the workplace

conflict is enough to perform well at the memory test. In this line, prior research has shown that goal difficulty could be a moderator of the efficacy of if-then plans the positive effect of self-regulating via if-then plans is enhanced when goals are difficult, whereas if goals are easy results from goal intentions and implementation intentions on self-regulation performance are similar (Bayer, Gollwitzer y Achziger, 2010; Gollwitzer y Brandstätter, 1997; Webb, Christian y Armitage, 2007).

On the other hand, we expected some kind of interaction effect regarding mindfulness and the other variables. In fact, we found a main effect of mindfulness as well as a two-way interaction effect mindfulness x CL. Apparently, mindfulness comparatively benefits memory performance only under high CL. On the other hand, regarding helping behavior we found intriguing results. There is a main effect of mindfulness indicating that mindfulness reduced helping behavior. The fact that mindfulness reduced helping behavior could suggest that participants under mindfulness mindset could be in a "non-reaction mode" (Grabovac, et al, 2011; Kabat-Zinn, 1991). In such a way that they were more focused in attending to their individual task and less interested acting towards the interruptions (still means of the number of answers given to colleagues could be considered as high rather than low helping behavior). One might also think that less helping is related to more memory performance, but just having a look at the Figures (Figure 17,18) indicates that this should not be the case. In addition, we found a three-way interaction effects regarding helping behavior. When participants have an if-then plan they helped less under mindfulness and low CL. However when participants had a mere goal intention they helped less under mindfulness and high CL, but not when they had an implementation intention. Apparently, mindfulness effect are more salient under high-CL, therefore if we consider this possible non-reaction effect of mindfulness, this effect should be more salient in high-CL condition as well. In fact, as

showed in Table 13 and 14, this mindfulness main effect that we obtained considering high and low CL, disappear when we see the conditions separately. And there is only a tendency effect (.079) under high CL condition; suggesting first, that this non-reaction hypothesis should be consider but with caution, and second, mindfulness effects are in fact more active under high CL for helping behavior as well. In this line, as we found that under goal intention and mindfulness participants showed less helping behavior than non-mindfulness participants, but under implementation intentions and mindfulness did not happen; it could be possible that the implementation intention was protecting action initiation (participants were focused on the movie and they had to stop and initiate helping behavior) from mindfulness non-reaction tendency.

Considering results all together, we suggest that other underlying effect regarding CL conditions could be explaining the unexpected as well as the overall results. In particular, we suggest that the high CL was at the same time a low psychological distance condition. It is important to notice that our high-level construal condition was a meaningful condition as well, and as prior research has shown, meaningful goals are a very important of the self (e.g., Sheldon 2008; Sheldon, Ryan, Deci, & Kasser, 2004). Therefore, if we consider that psychological distance is defined by the self as a referential point, a meaningful and abstract condition should represent at the same time a low psychological distance (PD) and high level of construal condition. Even more, it is likely that the high-CL in our study represented lower PD than our low-CL condition, at least in relation to the importance to the self. With this consideration in mind, in one hand, we might explain our initial most intriguing results: why memory performance under a goal condition (and no mindfulness) worked worse under high CL (low-PD?); and why implementation condition (and no mindfulness) does not change either memory performance or helping behavior from low CL to high CL (low PD). If it

fact, if high-CL in our study is at the same time is low-PD, apparently the psicological distance might be explaining our results over the CL as prior research on CLT (Trope & Liberman, 2010) and implementation intentions (Gollwitzer, 2012; Wieber et al., 2014) suggest that high CL and high PD should benefit goal intentions and low CL and low PD should benefit implementation intentions. Therefore, further research is needed to test which one, CL or PD, influences the more and under which conditions.

Our results showed that apparently the best strategy to self-regulate at the workplace conflict situation (for both in-role and extra-role performance) would be self-regulating via implementation intention under both a mindfulness state and high-level of construal and meaningful instructions. Our interpretation of these results, we additionally suggest two hypotheses to test in future research: 1) Meaningfulness could represent an important psychological distance dimension. Thus, our overall results might be influenced more by the psychological distance than by the level of construal;2) Mindfulness is better represented as a high CL and low PD; and 3) Mindfulness might enhance attentional processes, while implementation intentions would protect action itself from mindfulness non-reaction state.

## GENERAL DISCUSSION

**Regarding the identification of critical cues**, in one hand results showed a beneficial effect of mindfulness mindsets, as it was expected due to its open-mindedness and receptiveness characteristics (Bishop et al. 2004; Dane 2011). Participants under mindfulness conditions identified more critical cues than participants under control,

abstract, and concrete conditions. These results support the idea that mindfulness mindset is an open-minded and receptive state. Even though participants have crossed the Rubicon (from pre-decisional phase to post-decisional phase), they still have to realize which are the barriers and hindrances to achieve their valued-goal (i.e., making a beloved person happy). Thus, participants benefit from a receptive state where they may retrieve information easier. Although open-mindedness is a characteristic of the deliberative phase (Gollwitzer, 1999; Gollwitzer, 2012); it makes sense that this characteristic is still beneficial in an early stage of the planning phase, where individuals have to prepare the planning itself. This opens the question of whether additional sub-phases should be differentiated within the mindset model of action phases, at least in regards to planning phase.

On the other hand, we found similar effects among control, abstract and concrete conditions. Apparently the level of construal was not relevant for the identification of problematic critical cues when participants thought about the valued goal "making a beloved person happy". It is important to notice that we asked participants to identify problematic situations as critical cues. Have we asked them to identify opportunities to act in their desired direction, we could have found different results. For example, prior research found differential results when individuals think about pros versus cons of a desired goal (Nenkov & Gollwitzer, 2012), as pros represent a higher level of construal than cons (Eyal, Liberman, Trope, & Walter, 2004). Something similar could be happening regarding problematic cues versus opportunity cues. Further studies should consider this possibility.

**Regarding the quality of if-then plans** we expected that the concrete mindset showed better results. We were expecting that result because specificity is determinant

for the quality of the if-then plans (de Velt, et al 2011), and concrete mindsets (low CL) are supposed to focus on specific details of the situation (Trope & Liberman, 2010). The data support our assumption as participants in the concrete mindset condition showed higher percentage of high quality plans in comparison to all conditions. In general, participants generated low and medium quality plans in all conditions. However, despite we did not give any instructions about the quality of the plans they had to write down, participants in the concrete condition generated more high quality plans (with the four characteristics: high specificity, implemental type, approach type, and affirmative type). Apparently, by priming a bottom-up cognitive orientation, generating more specific, implemental, approach and affirmative type plans becomes more accessible.

An interesting consideration should be taken into account: mindfulness mindset did not benefit the quality of the plans, and in fact mindfulness instructions (but not mindfulness-SR) induced participants to write down more (although not statistically significant more) deliberative if-then plans. Therefore, we should consider that individuals under a mindfulness state might be under a non-action coherent mindset as well. Suggesting that mindfulness interventions (if they do not invite individuals to act but just to contemplate) might be beneficial for some kind of interventions but not others, unless a complementary strategy to shield from these effects is used as well (see below).

**Regarding the effect of the different mindsets on the implementation of if-then plans**, we found a clear impairment of the abstract mindset on implementation intentions. This result replicates the findings of the recent study by Wieber and colleagues (Wieber, Sezer, & Gollwitzer, 2014) where asking "why" had detrimental effects on behavior when individuals had formed implementation intentions to self-

regulate. In the same line, our results show detrimental effects on memory performance (in-role performance). No particular results were found regarding helping behavior (extra-role performance) but it is likely that there is a ceiling effect; participants in all conditions highly helped their colleagues. In addition, self-report measures indicate that participants under abstract condition felt more perceived stress than participants under concrete and mindfulness conditions. Considering that participants under abstract condition reported more perceived stress (they reported less control and higher levels of feeling overloaded), it may indicate that their self-regulatory resources were more compromised than for the rest of participants. Thus, our results support the idea that asking "why" impairs the process by which implementation intention act automatically and the potential prevention of ego-depletion as well (Bargh, Gollwitzer, & Oettingen, 2010). We did not found differences between mindfulness and concrete condition, thus both present same level of better performance than abstract condition. However, the expected beneficial effect of concrete condition was not found when it was compared to control condition. It is likely that the main effect of performance was determined by the efficacy of the implementation self-regulation strategy (as it was shown in previous studies). In this particular design, where all participants had an if-then plan to self-regulate, only participants whose mindset (i.e., abstract) did not fit well with implementation intentions showed different (and worse) results.

**In our last study we complete these findings by testing a more complex design where possible interaction effects** among the different mindsets and implementation intentions could be analyzed. Our overall results pointed out that the best strategy to self-regulate at the workplace conflict situation (for both in-role and extra-role performance) was regulating under mindfulness instructions, high CL and via implementation intention.

Our main results for memory performance showed a mindfulness main effect as well as a two-way interaction of construal level and mindfulness. Apparently, participants stayed more concentrated[5] and better recalled information under mindfulness and high-level of construal instructions (regardless implementation/goal condition), mainly when they are compared to non-mindfulness and high-level construal participants. At first glance, we did not find the expected effect of the level of construal and implementation intentions (versus goal intention). We expected better results on memory and helping behavior when participants furnished goal intentions with implementation intentions and they were under a low-level construal mindset. In the same line, we expected that participants with mere goal intentions performed better under a high-level construal. Instead we found that mindfulness enhanced memory performance under high-level construal and regardless the implementation condition; but reduced helping behavior if participants had a mere goal intention instead of an implementation intention (as compared to non-mindfulness instructions). We did not find a significant interaction effect of implementation intention condition (or goal intention) x level of construal.

There are some possible explanations for these results. In one hand, our manipulation of the level of construal was different in this last study. Instead of asking participants "why" or "how" in a non-related task, we primed participants with either a meaningful explanation regarding the "why" (high-level construal) of the research they were about to do, or a non-meaningful explanation regarding the "how" (low-level construal) of the research they were about to do. This manipulation did not require

[5] All participants had the goal "to stay calm and concentrated". Nevertheless, participants reported the same levels of negative affect among conditions, although we don´t know if their straight behavior of "staying calm" was different. Future studies could approach these aspects with behavioral measures of the affective and emotional state.

active thinking (versus prior manipulations where participants had to think and write down the "whys" or the "hows"). Prior research on ego-depletion (e.g., Baumeister, Bratslavsky, Muraven, & Tice, 1998; Vohs et al, 2008) has shown that active versus passive thinking consume more regulatory resources. Thus, as we elicited high and low level of construal throughout a passive way of thinking, self-regulatory resources are less compromised than under active way of thinking. Therefore, executing the workplace conflict situation under passive mindsets is less difficult than executing it under active mindsets. In this line, research has shown that implementation intention effects could be moderated by the difficulty of the goal (e.g., Bayer, Gollwitzer y Achziger, 2010; Gollwitzer y Brandstätter, 1997). Thus, in the workplace conflict situation a goal intention to stay calm and concentrated (but neither an emotion-regulation strategy, nor a lack of goal[6]) apparently was enough for participants to perform at the same level as implementation participants did. If implementation effect (as compared to goal intention) was moderated by the difficulty of the task, a goal and a goal furnished with an if-then plan would show similar effects despite the level of construal that was involved. This could be explaining why we did not find a main effect of implementation intentions.

On the other hand, there is another interesting explanation to account for our results. Our high and low level of construal conditions manipulated the level of abstractness as Construal Level Theory posits. High-CL condition included superordinate goals and its instructions answered to the question of why participants were doing the experiment. On the contrary, low-CL condition included incidental information about the immediate context, very concrete details about how to execute the

[6] As showed in Studies 2 & 3

research. However, it should be pointed out that our high-level construal condition was a meaningful condition as well. The high-level construal condition or the "why" of the research -that we explain to participants- was linked to the importance of self-regulation for their personal and most important goals. As prior research has shown, meaningful goals are a very important part of the self (e.g., Sheldon 2008) and means or intermediate goals to achieve our meaningful goals become important as well (Sheldon, Ryan, Deci, & Kasser, 2004). Furthermore, as suggested by Schwart & Bilsky (1990), values and goals are hierarchically organized in terms of their importance to the self, and whenever two values or goals are guiding an action, the value that is higher in a person´s importance hierarchy should have more impact on behavior. Considering this line of reasoning, it is important to notice that the level of construal is closely related to psychological distance, but they are not the same. Psychological distance is egocentric. Its reference point is the self (Trope & Liberman, 2010); therefore, it seems plausible to think that the psychological distance of our high-level construal condition could be influenced by the importance to the self or meaningfulness. A few studies (Fujita et al., 2006) controlled the value of the goal, but they did not consider its possible implications to PD. For example, Fujita and colleagues (Fujita, et al., 2006, Experiment 4) manipulated levels of construal (high and low) and presented participants with words associated with temptations regarding to the goal "to study" that participants had to evaluate as positive or negative. They also asked participants how important the goal was to them. Their results showed that only when the goal was actually important to participants, high CL helped to evaluated temptations as less positive (Fujita, et al., 2006). In a previous study, the authors found that behavioral intentions under high-CL were stronger than under low-CL, but only when the high-CL was also valued condition. In fact, their results showed that apparently high-CL lead to weaker

intentions in the presence of costs (i.e., being uncomfortable; feeling pain; feeling tired, etc.) but that this effect was moderated by the value of the goal.

In addition,there is some research that showed moderator and mediator effects of the level of construal as well. For example, Steinhart and colleagues (Steinhart, Mazursky, & Kamins, 2013) suggest that not all distant events (high psychological distance) are construed at higher levels of construal and that not all close events (low psychological distance) are construed at lower levels. They showed that this effect is moderated but the individual´s regulatory focus fit state. Other variables have been found as mediators of distance and construal, Förster and Becker (2012) showed that participant´s curiosity mediated the relation between distant future thoughts and global processing. In their studies the effects of temporal distance on perception and level of construal was systematically mediated by participants' curiosity. The authors suggested that these effects could be driven by epistemic motives, assuming that people are generally curious and want to know about unclear or new events (Kashdan & Silvia, 2009). The interesting question here is that the authors suggested that studying the underlying motives regarding psychological distance and level of construal relationship could be important for research (Förster & Becker, 2012).

Thinking it all through, we suggest that if high construal level conditions (considering past research too) regarded meaningful values and goals, it is quite possible that the psychological distance of those conditions was in fact a low one, even if values and goals were formulated in a high level of construal. It would be the case of our high-CL condition (where we tell participants the importance of self-regulation to achieve their personal goals). It would also be the case of other conditions that can be found in prior research on psychological distance and CL. For instance, Giacomantonio

and colleagues concluded that psychological distance enhanced value-behavior correspondence (Giacomantonio, De Dreu, Shalvi, Slighte, & Leder, 2010) In their studies they considered low construal level as a near future condition (Monday next week) and high construal level a distant future condition (Monday next year). They gave examples of what participants typically reported as a near future condition: "I will wake up and get a shower"; and as a distant future condition: "I will be happy with my new boyfriend". Whereas it is showed that asking participants about a near future condition brought to their minds low construal level examples, and asking participants about a distant future condition brought high construal level examples; it seems unclear how these examples -being less or more meaningful- could be related to the self in a psychological distance way. They might be temporarily distant but psychological distance in any other dimension. We suggest that it would plausible to assume that meaningful events (such as being happy with a boyfriend) should represent lower psychological distance regarding meaning and importance to the self, than routine events (such as waking up and getting a shower); and that this meaningfulness-dimension would have more impact on behavior than a mere temporal dimension (e.g., Monday next week vs Monday next year) or other non-meaningful dimensions. In summary, we suggest that meaningfulness might represent an important psychological distance dimension underestimated, and that future research might benefit from the reevaluation of prior findings in this line, as well as design new studies to test for this hypothesis.

Our results also shed some light on the study of. First, we found a main effect of mindfulness (significant effects remain when we control for mindfulness trait); in general participants give more correct answers under mindfulness conditions. Second, there is an interaction effect between mindfulness and level of construal regarding

memory performance. The interesting point is the interaction effect with the level of construal. Participants in a high CL and meaningful condition (-low PD?) performed better when they had mindfulness instructions. In one hand, it could be suggested that mindfulness fit better with a high-CL; after all, abstracting the self-presence and being an observer is a clear high-level of construal. On the other hand, mindfulness invites to take notice of the details of the present moment the observer-self persective, what it sounds more like a low- CL and PD according to CLT. Therefore, we think it is not only the high-CL, but the meaningfulness (low PD?) what it could be accounting for our results. We make this suggestion while having in mind therapy settings. In therapy (i.e., Wilson & Luciano, 2002; Hayes, Stroshal,& Wilson, 1999, 2013) mindfulness is not applied (or should not be applied) out of context. Mindfulness exercises are always in the serve of meaningful goals, and its beneficial effects on well-being[7] is supposed to rest on this relationship. We are aware of that to differentiate between the effect of the level of construal and the effect of the meaning (low-PD?) dimension further research should include at least a similar study adding a low-CL meaningful condition as well as a high-CL non meaningful condition. In summary, from our results we might suggest that mindfulness benefits from a high-CL and meaningful condition, but also that only adding an implementation intention strategy memory as well as helping behavior benefit from it. In this sense, we suggest that mindfulness might enhance attentional processes, and implementation intentions might protect action from mindfulness non-reaction state.

**Finally, to answer our initial question: How the self-regulation strategy of generating and implementing if-then plans could be best taught in interventions?**

[7] Well-being understood as a global functioning measure, not just as a mere relaxation measure, lack of anxiety, etc.

When designing interventions the different phases of the self-regulation process should definitely be considered. These results clearly pointed out the differential effects low and high construal mindsets, as well as mindfulness mindset may have in the different phases of the self-regulation process. In this line, there are some studies that already suggest the combination of different self-regulatory strategies in a sequentially ordered way (e.g., Adrianse et al., 2010; Hagger & Luszczynska, 2014; Milne, Orbell, & Sheeran, 2002). These authors found a much more powerful effect on behavior when participants combined motivational (e.g., creating strong goal commitment) and volitional (i.e., implementing if-then plans) interventions. According to our data, when individuals start planning, it is better to think about critical cues in an open-mindedness mindset, such as a mindfulness mindset. After that, but still within the pre-actional phase, a concrete mindset (low-CL) should be elicited, (i.e., asking "how") to generate high quality if-then plans. In the action phase asking "why" (high-CL) is counterproductive. People should remain either in a concrete mindset (low-CL) or in a mindfulness one (as neither of them impaired performance), because an abstract (high-CL) mindset clearly impairs performance when people are using if-then plans. However, not all high-CL mindsets impair performance; when mindfulness is given under a high-CL and meaningful mindset (i.e., realizing the value of the self-regulation research), memory performance is enhanced (for both goal/implementation condition), and helping behavior is not reduced if participants are self-regulating via implementation intentions.

# PARTE III: ASSEMBLING IT ALL

# CHAPTER 6:

# GENERAL DISCUSSION

# GENERAL DISCUSSION

In our present research we investigated how the self-regulation strategy of forming implementation intentions could be best integrated in interventions. Specifically, we pursued three main aims: 1) to experimentally test the efficacy of implementation intentions in a more realistic scenario that reflects more complex and common situations in everyday life (workplace conflict situation) as compare to emotion regulation strategies; 2) to test under which construal level mindsets implementation intentions could be better generated and more efficiently applied; and 3) to enriched experimental research on mindfulness and its relation to self-regulation by implementation intentions.

From our seven studies we found that dealing with workplace conflicts is affectively and cognitively demanding. In this scenario, using implementation intentions to stay calm and concentrated enhanced in-role (memory) and extra-role (helping behavior) performance. Straightforward implementation intention strategy worked better than reappraisal and suppression strategies, even when these strategies have been furnished with implementation intentions. Apparently this happened because implementation intentions are effortless (efficient), and their effects rest on automatic processes. This conclusion is plausible after the results found along the studies regarding both performance results and commitment to the goals as reported by the participants. Furthermore, results implied that performance is reduced under emotion regulation strategies, even when these strategies are furnished with if-then plans. It is likely that this happened due to: the comparative (cognitive and affective) effort that focusing on controlling negative affect might produce (versus focusing on act calm and

concentrated); and regarding the combination if-then with emotion regulation strategies, the more complex instructions of the reappraisal strategy when it was furnished with implementation intention, and the negation included in the suppression implementation intention. Therefore, for effective planning straightforward and simple if-then plans should be applied.

Interestingly, negative affect is not reduced by implementation intentions (neither by any of the strategies) in any of the workplace conflict studies. Apparently, participants under implementation intentions managed to act calm and concentrated and thus performed well, while they still experienced as much negative affect as participants in the other conditions. Similarly, recent research showed that positive effects of implementation intentions could be achieved by their research participants without a respective reduction in anxiety (Stern & West, 2014). It appears, then, that implementation intentions do not need to reduce negative affect to effectively deal with stressful situations. Participants' perceived stress measures regarding felt emotions led to similar conclusions. In Studies 2 and 3, apparently participants under implementation intention condition realized (afterwards) that they had more control (PSS control) over the situation whereas felt emotions (PSS emotion) and overloaded (PSS overloaded) feelings were similar to the other conditions.

As prior research has found that if-then plans are effective to down-regulate negative affect (e.g., Schweiger Gallo et al., 2012) we suggest two alternative explanations that could be accounting for our results. First, whereas past research on dealing with negative affect via implementation intentions has focused on down-regulating the negative affect itself (Schweiger Gallo et al., 2009, 2012; Schweiger Gallo & Gollwitzer, 2007), the present studies target the question of whether self-

regulating by implementation intentions is beneficial for performance when participants deal with experienced negative affect within the workplace conflict. Thus, down-regulating affect is not the ultimate goal (superordinate goal) in our study, but just a possible mean (subordinate goal) to reach actual ulterior goals. In other words, participants have to reach two superordinate goals (in role and extra role performance), beyond the subordinate goal of down-regulating emotion. This marks a difference regarding participant´s focus. In fact, results showed that apparently the down-regulation of negative affect turned out to be secondary and even not necessary to effectively reach the superordinate goals. Second, in a more natural setting like our workplace conflict, with more complex situation and instructions, negative affect is not as easily identified as compared to being confronted with a single experimental stimulus. In addition, we should consider a possible design-explanation. Implementation intentions efficacy is supposed to rest on automatic processes. Thus, if we interrupt participants and asked them how they are feeling (as we did in the workplace conflict), it is possible that we break somehow the automatic process of half (I'll stay calm) of the if-then plan (If a colleague interrupts me, then I'll stay calm and concentrated) adding awareness about the affective state. Therefore, the beneficial effects that implementation intentions could have had on the regulation of negative affect were not revealed. Along the interruptions we did not asked participants how concentrated they were, therefore, this part of the if-then plan was "untouched". This is quite interesting; although it might be considered a potential design-flaw[1]; it represents as well a good chance for additional knowledge. These differential effects for "stay calm" and "stay concentrated" may be

[1] We did not change the design from the Study 1 as a mean of multiple measures of affect along the interruptions were considered a better measure than just a single one. In addition, in the following studies the if-then plan strategy was getting the better results in performance, which was our real aim (beyond the possible down-regulation of affect). Thus, we did not consider necessary revisiting the design.

considered as additional evidence for 1) supporting that implementation intentions efficacy rest on automaticity; and 2) supporting the idea that not always it is necessary (and could even be counterproductive) to down-regulate emotions to achieve superordinate goals (at least when negative affect is involved). In addition, the fact that implementation intentions worked without the need of down-regulating negative affect, is in itself a relevant outcome to support the main assumptions of acceptance- and mindfulness-based therapies (e.g., Acceptance and Commitment Therapy, Hayes, Stroshal, & Wilson, 1999; Mindfulness-Based Cognitive Therapy, Segal et al., 2002; Mindfulness-Based Stress Reduction, Kabat-Zinn,1991). These therapies advocates for focusing our attention to the present moment and for behaving in the pursuit of goals and values instead of focusing our attention to our internal events such as emotions, thoughts, physiological sensations, etc.

Regarding the question of under which conditions implementation intentions could be better generated and more efficiently applied, our results supported the assumption that different mindsets have differential effects according to the phase of the self-regulation process. Mindfulness mindset helped to identify critical cues when individuals started planning (but neither concrete, nor abstract); concrete mindset enhanced the quality of the if-then plans (but neither mindfulness, nor abstract), and abstract mindset impaired performance in workplace conflict (but neither mindfulness and concrete mindset did). These results provided some additional considerations regarding the model of action phases and mindsets. As mentioned above, the model of action phases proposed four different phases: predecisional, preactional, actional and postactional phase (e.g., Heckhausen & Gollwitzer, 1987). Each of the phases is associated with a function and these functions are supposed to be associated with a

different mindset. Our results suggest that it might be necessary to differentiate additional sub-phases, at least, within the post-decisional planning phase. When individuals have already decided their goals, they have to prepare their planning. In the beginning of the planning phase, they still have to deliberate the critical problems (opportunities) that they have to overcome (take) in order to achieve their already selected goals. Thus, it makes sense that some kind of deliberative mindset (i.e., mindfulness) still beneficiate the beginning of the planning phase. After that, concrete and implemental mindsets benefit the final planning itself.

In addition, our findings suggest that implementation intentions benefits from low construal level mindsets (i.e., concrete, Study 5), and are impaired from high construal level mindsets (i.e., abstract, Study 6) but only when high construal level was not meaningful (Study 7). In our last study our prediction that high and low level of construal would differentially affect self-regulation by if-then plans or mere goals was not supported by our data. In order to explain this last result, a possible moderator effect of goal difficulty on if-then plans efficacy was considered first. In addition, we came up with an alternative explanation. Our studies were designed following the Construal Level –Psychological Distance logic as well as prior research did (e.g., Trope & Liberman, 2010; Fujita et al., 2006; Giacomantonio et al., 2010). That is why we just manipulated the level of abstractness, asking "why" and asking "how" (Study 5 & 6) or given a "why" and "how" explanation (Study 7); and we considered that this procedure would elicit high and low construal level. Asking why (asking how) in a non-related task should be manipulating just high (low) construal level. However, in our last study (where the why and the how were related to that moment present task) we suspect that the meaningfulness of the why and how content was accounting for our results, as

results were somehow intriguing. Thinking through, we realized that the difference in meaningfulness was probably related to psychological distance (PD). If psychological distance refers to the "self" (Trope & Liberman, 2010), meaningfulness could be an important factor psychological distance. Thus, a high level of construal representation of a situation/object with an additional high component of meaningfulness might be a high level of construal with a low level of psychological distance at the same time. With this consideration in mind, we interpreted our results as follows. First, implementation intentions were affected by the psychological distance; that is why implementation intentions did not suffer (as compared to goal intentions) from high-CL (as it was low-PD too). Second, mindfulness effect was highly active under high-CL + low PD. As described earlier, mindfulness instructions in one hand abstract the self-presence out of the incidental characteristics of situations over time; however, at the same time the self-presence focused on the present moment details, from the perspective of an observer-self. Thus, it makes sense that mindfulness fitted well with our high-CL condition (as it was low-PD too). In addition, our results showed that mindfulness produced differential effects as compared to abstract (and non-meaningful) mindsets, but benefited from high (and meaningful) level of construal regarding memory performance. At the same time, mindfulness presented similar effects as concrete mindset in some phases of the self-regulation process (action), however not in others (planning). Following prior line of reasoning, if mindfulness represents both a high-level of construal and low psychological distance according to its abstractness and importance to the self; this could explain why mindfulness results among the studies (1) were different from high construal level and psychological distant mindset (i.e., abstract, Study 5 &6), partially similar to low construal level and low psychological distant mindset (i.e., concrete, Study 5 & 6), and benefits from high level of construal but not from low level of

construal (Study 7). Mindfulness results supported the hypothesis of its duality high-CL/low-PD. Results also indicated that mindfulness might have a good impact on attention and related processes, whereas a "non-reaction" (Study 7), more deliberative (Study 5) effect might impair active action itself. Although this non-reaction explanation was not directly derived from our results, we consider it should be taken into account, for future research as well as for designing interventions with more caution. Interestingly, implementation intentions might protect action initiation from this mindfulness "non-reaction" effect.

Of course, we were aware of the limitations of the last design once we considered meaningfulness as a potential affecting variable. However, it was still possible to shed some light into our prior hypothesis and our new ones, and this insight represented an opportunity to design and conduct further interesting and necessary research.

In summary, when designing interventions the differential phases of the self-regulation process should be considered; implementation intentions should be formulated as straightforward and simple if-then plans; mindfulness should be linked to meaningful-abstract constructed instructions (e.g., explicitly giving meaning or purpose to the intervention); adding implementation intention strategies for specific action initiations might be recommended when mindfulness is part of the intervention as well. In this sense, we suggest that mindfulness might enhance attentional processes, and implementation intentions might protect action from mindfulness non-reaction state. Therefore, the combination of mindfulness and implementation intentions within the same intervention seems promising.

## LIMITATIONS AND FUTURE RESEARCH

Despite our focus on rigorous experimental research based mainly on actual behavior measures and our clear research aims, there are some limitations that have been pointed out along the studies that we mention again in the following lines. At the same time we additional suggest future research in their regard, as well as new directions to enrich implementation, mindfulness and psychological distance research.

First we should consider that, even though our main dependent variables were based on actual behavior, some of our other variables were self-reported. For example, our affective measures as well as other control questions in workplace conflict studies were based on self-reports which may be biased or not sensitive enough to assess the intended construct fully. Future research could profit from including additional measures, such as psycho-physiological measures for example. Same applies for our mindfulness procedure; it would be interesting to conduct further experimental studies with MRI, EEG measures, etc.to test for mindfulness state elicitation further than self-reported measures.

Our first study could have included[2] a control condition; however we consider that replication of results in all three studies regarding negative affect (as compared to other variables) are good prove of a negative affect elicitation by the workplace conflict. One possible limitation of the mindfulness elicitation procedure (Study 4) could be that we did not include three different control conditions of the different format of presentation; however we think that the comparison among mindfulness conditions provides enough evidence to extract conclusions about the format of presentation in this

[2] As it was initially designed, a computer problem (failure in the condition selection command) made all participants were included in the same condition. Lucky for us it was the experimental condition, that included pre-post measures so we could assess our workplace conflict effects, although with less riguour as when comparing to a control condition. Nevertheless, as recruiting participants is a hard task, we decided to move forward the following designs.

particular procedure. Regarding mindfulness procedure as well, future studies could focus on the elicitation of curiosity dimension. Considering mindfulness results, future studies should consider as well the possible qualitative changes (Davidson, 2010) that might produce the continue practice of mindfulness. Not only by including longitudinal studies considering the progress of mindfulness interventions, but also considering people already trained in mindfulness.

In addition, we could also have varied the difficulty and content of the workplace conflict along the studies, however we preferred to keep it as it originally was in order to compared results among studies easily. Nevertheless, further research should be conducted in different scenarios, under lab and natural settings. We should also consider that in our workplace conflict participants had conflicting goals (helping others and paying attention to the movie). Further research could compare a goal integration condition with a goal conflict condition. In the same line, the ulterior goals of the workplace conflict were goals that participants did not choose. Whereas it is true that at the workplace this is a common thing to happen, regarding our personal goals we might find goal conflicts as well. Thus, another possible research could include integrated as well as conflicting personal goals in the studies.

In the same line, different self-regulation strategies could be used as well. One might also want to go beyond studying the self-regulation strategies suggested to research participants in the present studies (i.e., staying calm and concentrated by reappraisal, and suppression, implementation intentions). For example, taking a distant perspective or detached perspective (Kross & Ayduk, 2011).Additionally, the comparison of this distant perspective and mindfulness would be an interesting option of research.

From our studies (Study 5,6, 7) we suggested that it could be possible that additional sub-phases within the model of action phases need to be included. As for example, under the planning phase we found two different mindsets (mindfulness and concrete) appropriate for two different parts of the planning (identifying critical cues and generating if-then plans respectively). Further studies could incorporate the interest for disentangling these possible sub-phases within the mindset model of action phases. In addition, we did not conduct further studies with the mindfulness-SR condition (from Study 5). This particular mindset showed good results on the generation of critical cues, however we were more interested on the other mindfulness mindset because it was more similar to clinical practice than the mindfulness-SR. Nevertheless, it would be interesting to continue a line of research in this sense. Introducing critical mindfulness self-referential words into the general instructions of the interventions (in the same line that formulated the instructions in an abstract or concrete way) could be an interesting line of research.

From our last study, many future studies can be suggested. First, one of the most important line of future research would be to test the hypothesis that psychological distance regarding meaning could be an important dimension that could involve that a high CL at the same time represent low psychological distance. Studies comparing different objects represented with high and low CL, as well as high and low meaning, could shed light into this matter. Second, the effects of mindfulness should be compared within a 2 (high/low CL) x 2 (high/low PD). To further test for the hypothesis that mindfulness effects are enhance under a high CL and low PD condition. In this line, we could design several experiments comparing other psychological distance (temporal,

space) with respect to mindfulness. These options are already part of our research agenda.

## MAYOR CONCLUSIONS

### EXPERIMENTAL CONSIDERATIONS FOR DESIGNING INTERVENTIONS

- Combining mindfulness and implementation intention interventions seem promising.

- Straightforward implementation intentions to stay calm and concentrated are more effective in dealing with affective and cognitive demanding workplace conflicts, as compared to using no strategies or traditional emotion-regulation strategies such as reappraisal and suppression.

- The mindsets affecting the different phases of the self-regulation process by implementation intentions should consider:
    - Generating if-then plans benefits from an open-mindedness mindset such as a mindfulness mindset when critical situational cues have to be identified
    - Generating if-then plans benefits from concrete mindsets regarding the quality of the if-then plans formed
    - Abstract (and non-meaningful) mindsets impair action performance, whereas mindfulness and concrete mindsets showed similar and beneficial results.

- Mindfulness under a high (and meaningful) level of construal benefits memory performance regardless if self-regulation is via implementation intentions or goal intentions; however, it reduces helping behavior if goals are not furnished with implementation intention (as compared to non-mindfulness). We suggest that mindfulness might enhance attentional processes, and implementation intentions might protect action from mindfulness non-reaction state.

- Our results support acceptance and mindfulness based therapies in that controlling internal events (e.g., emotions) not only involves an additional effort, but it impairs actual behavior. In addition, this kind of interventions could benefit by including in their programming straightforward implementation intentions to deal with complex situations.

## ADDITIONAL THEORETICAL IMPLICATIONS:

- Results from our studies enrich the evidence supporting the assumption that implementation intention effectiveness rest on automatic processes.

- Our results suggest that there might be an additional effect of meaningfulness (importance and relevance of goals regarding the self) that could be relevant to understand prior and past research on self-regulation, construal level and psychological distance. Not all high level of construal involves high psychological distance, and this could be confusing, particularly when we are talking about ideas and values.

- From our results we suggest that mindfulness could represent both a high-level of construal because its abstractness and low psychological distance mindset according to its importance to the self. That is why mindfulness effects are apparently more active under a high level of construal and meaningful condition (Low-PD?), but not from low level of construal condition.

## CONCLUSIONES (ESPAÑOL)

### CONSIDERACIONES EXPERIMENTALES PARA EL DISEÑO DE INTERVENCIONES:

- Las intenciones de implementación directas para permanecer tranquilo y concentrado son más efectivas a la hora de manejarse en un lugar de trabajo conflictivo y demandante a nivel cognitivo y emocional. Esto en comparación con las estrategias tradicionales de regulación de la emoción, tales como el *reappraisal* y la supresión, o con no poner en marcha ninguna estrategia de autorregulación en absoluto.

- Los *mindsets* que afectan a las diferentes fases del proceso de autorregulación a través de intenciones de implementación deberían considerar lo siguiente:
    - Los estados de apertura mental como el de *mindfulness* (o consciencia plena) favorecen la generación de planes si-entonces cuando se tienen que detectar claves críticas de la situación.
    - Los *mindsets* concretos favorecen la calidad de los planes sí-entonces.
    - Los *mindsets* abstractos (y carentes de un signficado personal) merman el rendimiento, mientras que los *mindsets* concretos y los de *mindfulness* muestran beneficios similares.
    - Los estados de consciencia plena con un alto (y significativo) nivel de *construal* favorecen el rendimiento en memoria, independientemente de si la autorregulación se realiza a través de intenciones de implementación o de intenciones de meta. No obstante, reduce la conducta de ayuda si las metas no están reforzadas con el seguimiento de intenciones de

implementación (en comparación con los *mindsets* distintos del *mindfulness*). Sugerimos que el mindfulness potencia el proceso atencional y que las intenciones de implementación contrarrestan el estado no reactivo del *mindfulness*, asegurando la acción.

- Nuestros resultados validan empíricamente las terapias basadas en la aceptación y el mindfulness, en tanto que el control de eventos internos (p. ej., emociones) no solo implica un esfuerzo adicional, sino que además limita la acción. Además, sugerimos que dichas intervenciones podrían beneficiarse incluyendo en sus programas intenciones de implementación directas para afrontar situaciones difíciles.

## IMPLICACIONES TEÓRICAS ADICIONALES:

- Los resultados de nuestros estudios apoyan el supuesto de que la eficacia de las intenciones de implementación se debe a que descansa en procesos automáticos.

- Nuestros resultados sugieren que puede haber un efecto adicional de la importancia que las ideas y los valores tienen en el yo (o su significancia). Este factor puede ser relevante a la hora de entender la investigación pasada y futura en autorregulación, nivel de *construal* y distancia piscológica. No todo alto nivel de construal implica alta distancia psicológica, y esto puede confundir la interpretación de los resultados, particularmente cuando hablamos de ideas y valores.

- A partir de nuestros resultados, sugerimos que el *mindfulness* puede representar un *mindset* con, al mismo tiempo, un alto nivel de *construal* y un bajo nivel de distancia psicológica, dependiendo de la importancia que le asocie el yo. Es por eso que se distingue del *mindset* abstracto, con un alto nivel de *construal* y de distancia psicológica, y que es parcialmente similar al *mindset* concreto, que presenta un bajo nivel de *construal* y una baja distancia psicológica. Es por eso también que se beneficia de un alto nivel de *construal*, pero no de un bajo nivel de distancia psicológica.

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